SPECIAL LIGHTING ISSUE

POPULAR PHOTOGRAPHY

WORLD'S LEADING PHOTOGRAPHIC MAGAZINE

NOVEMBER, 1956 ★ 35 CENTS

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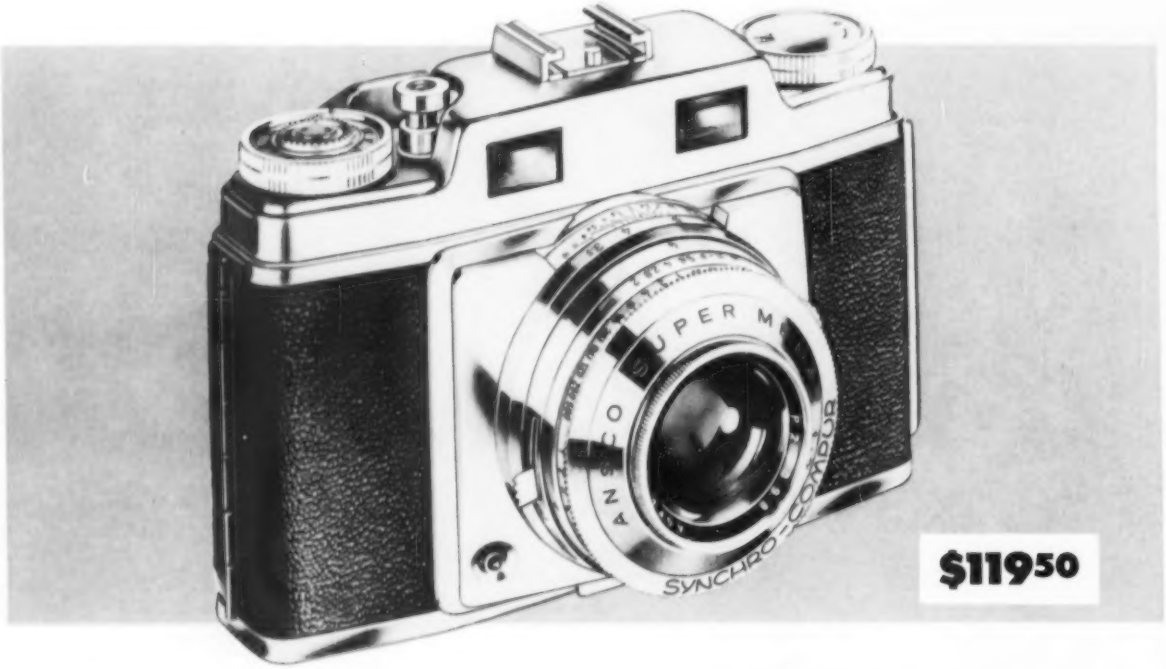

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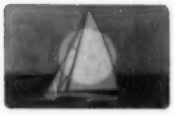

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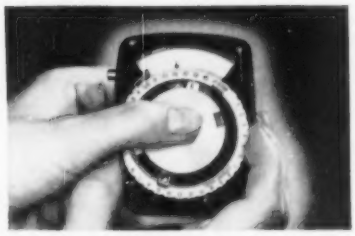

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NOVEMBER, 1956

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WORLD'S LEADING PHOTOGRAPHIC MAGAZINE

Ray Solowinski of New York made this picture of Betty John in his Carnegie Hall studio as an exercise to see how various objects would look when photographed together. It is this curiosity about their medium which makes good photographers with the ability and imagination for exacting work. A Rolleiflex with 75-mm Xenar f/3.5 lens was used. Exposure, on Daylight Ektachrome was 1/10 at f/5.6 with natural light.

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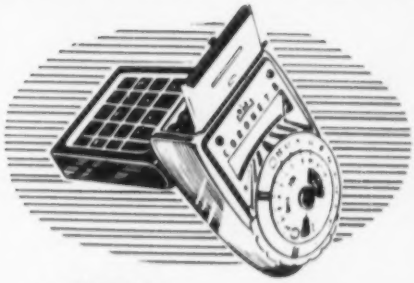

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LETTERS TO THE EDITOR

What Happened to the Snapshot?

Here's one man's answer to *What Happened to the Snapshot?* (May, 1956)—a three-panelled screen of "snaps." This project was completed by Walter P.

Screenful of Snaps

Schlemmer, to preserve the pictures taken over a period of forty years. He started with a Premoette, Jr. and has progressed to a Rolleiflex, but he still "snaps" his four children and their families, though with better technique and results. There are family pictures recording school days, weddings, picnics, and vacation trips.

MARJORIE M. SCHLEMMER
Wabash, Ind.

For Kids, No "Cheese"

It's a problem to photograph a group of children and have each look happy. I've tried most ways, such as having them say "cheese" but I've found a sure method. Take two pictures: on the first they can make faces, but on the second they must be natural. It really works!

ROBERT C. MOREHOUSE
Bedford Village, N. Y.

Photography "Olympics"

One of the arts transcending all barriers is photography; why not use it to cement relations between nations? An annual world-wide event could be organized to exhibit the photography of nations. Competitions could be set in various types of photography, and there would be lectures by leading photographic figures. Each festival could be sponsored by the host nation, and public donations could be sought, as in the Olympic Games.

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TOOLS AND TECHNIQUES

by Norman C. Lipton

A round-up of recent developments and significant trends

Universal Gunstock. A low-cost gunstock mount that can hold practically any type of still or movie camera in a steady position for comfortable viewing and easy operation of the various controls has just been introduced to the market under the trade name "Camstock." Simple accessories adapt the mount for use with movie-camera light bars and also with all binoculars but the miniature type. The unit is 16¾ inches long and 7⅛ inches high and it weighs about 1½ pounds. It provides four points of contact between the operator's body and the equipment—namely, the shoulder and butt of the gunstock; the right hand and the rear grip; the left hand and the forward grip; and the operator's forehead and the camera. The camera can be operated either by means of its cable release, passed through a hole in the stock near the operator's forefinger position, or, by means of the camera's body release when the user's right hand grips the upper camera support. In

Inexpensive Camstock support can be used with practically any still or movie camera; accessory clip adapts unit for binocular use.

in the past, more elaborate and far more expensive gunstock supports have been available for a particular camera or line of cameras with price serving as a detriment to widespread usage. The utility of such a support with long-focus lenses where tripods are impractical to use is unquestioned. For the present, the Camstock is available by mail order through the manufacturing concern—the Camstock Corporation of Boston, Mass. It is priced at $14.95, with the accessory binocular clamp available for an additional $2.50.

Bolsey to Obex. A popular name in the postwar camera industry is now appearing on the market under new auspices. Since June 1, 1956, the manufacture and distribution of the Bolsey line of cameras and picture-making accessories has been taken over by the Obex Corporation of America, Lynbrook, L. I., New York. Obex has been manufacturing Bolsey cameras since their inception 10 years ago. Quoting a communication on the subject from Norman H. Levitin, vice president of Obex: "Through a tighter control of production and distribution, additional features are being incorporated in all Bolsey products at no extra cost to the consumer. The Obex Corporation of America has extended the guarantee of all Bolsey cameras. This guarantee means that every Bolsey camera now carries a warranty for one full year against all possible mishaps." Incidentally, the president of Obex is Otto Brullhard.

Summer Trade Shows. The annual Trade Show and Convention of the Photographers' Association of America took place at the Conrad Hilton Hotel in Chicago last July 23 through 27. The event had been moved up from the usual August dates to avoid conflict with the Democratic National Convention, but the change created a reporting difficulty inasmuch as the PA of A event overlapped the 1956 Convention and Trade Show of the National Audio-Visual Association, which opened on July 22 and closed on the 25th at the Hotel Sherman in Chicago. (A summary of some of the interesting developments in projection equipment at the NAVA show will be found at the end of this report.)

The newly organized Industrial division of the PA of A was the focus of considerable interest and activity throughout the duration of the Convention as was the case in 1955. Prior to the opening of the event, the Association's organizational structure had been revised to put the industrial group on an equal status with the commercial and portrait groups—through the allocation of two directorships to each of the three. A significant growth in industrial membership was reported—from 350 at the end of the 1955 PA of A Convention to 650 at the end of this year's event. It was interesting to note that some 550 individuals attending the 1956 meeting registered with the specific intention of taking part in the 4½-day industrial conference program which ran concurrently with four-day programs by each of the other two divisions and a two-day photojournalism short course.

There weren't as many new products offered at the trade show as in 1955. There was, however, an increasing number of offerings intended for industrial-plant and field photographers as opposed to those meeting the specialized needs of portrait- and commercial-studio workers. Throughout the exhibits, the ever-growing importance of color was much in evidence.

The trade show was clearly dominated

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1. ***Combined viewfinder-rangefinder*** of life-size image offers the benefits of both split-image and coincident-image focusing.
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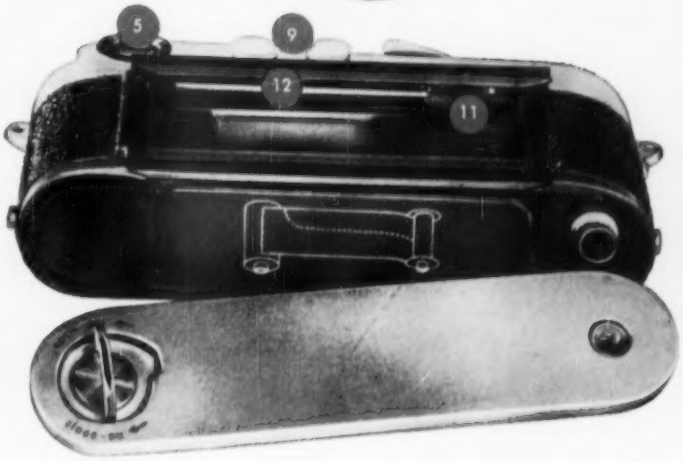

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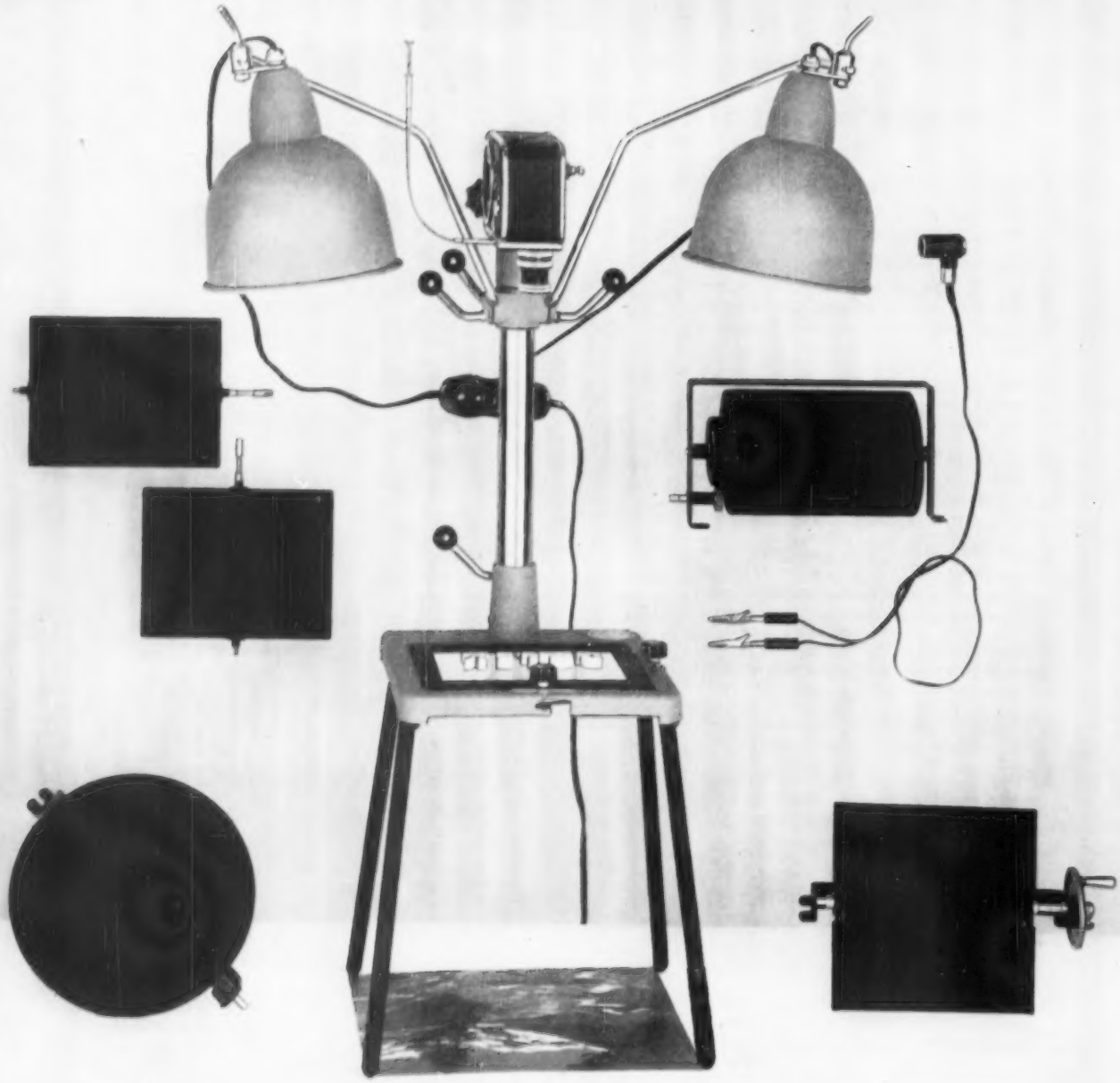

This first professional-like titler for 8mm filming is only $99.00 complete. Basic equipment (platform, supporting stand with camera holder, and unique new title-centering device) sold as a separate unit for $37.50; accessory kit for $61.50. Available now for Bolex B-8, C-8 and L-8 cameras . . . for other 8mm cameras at an early date.

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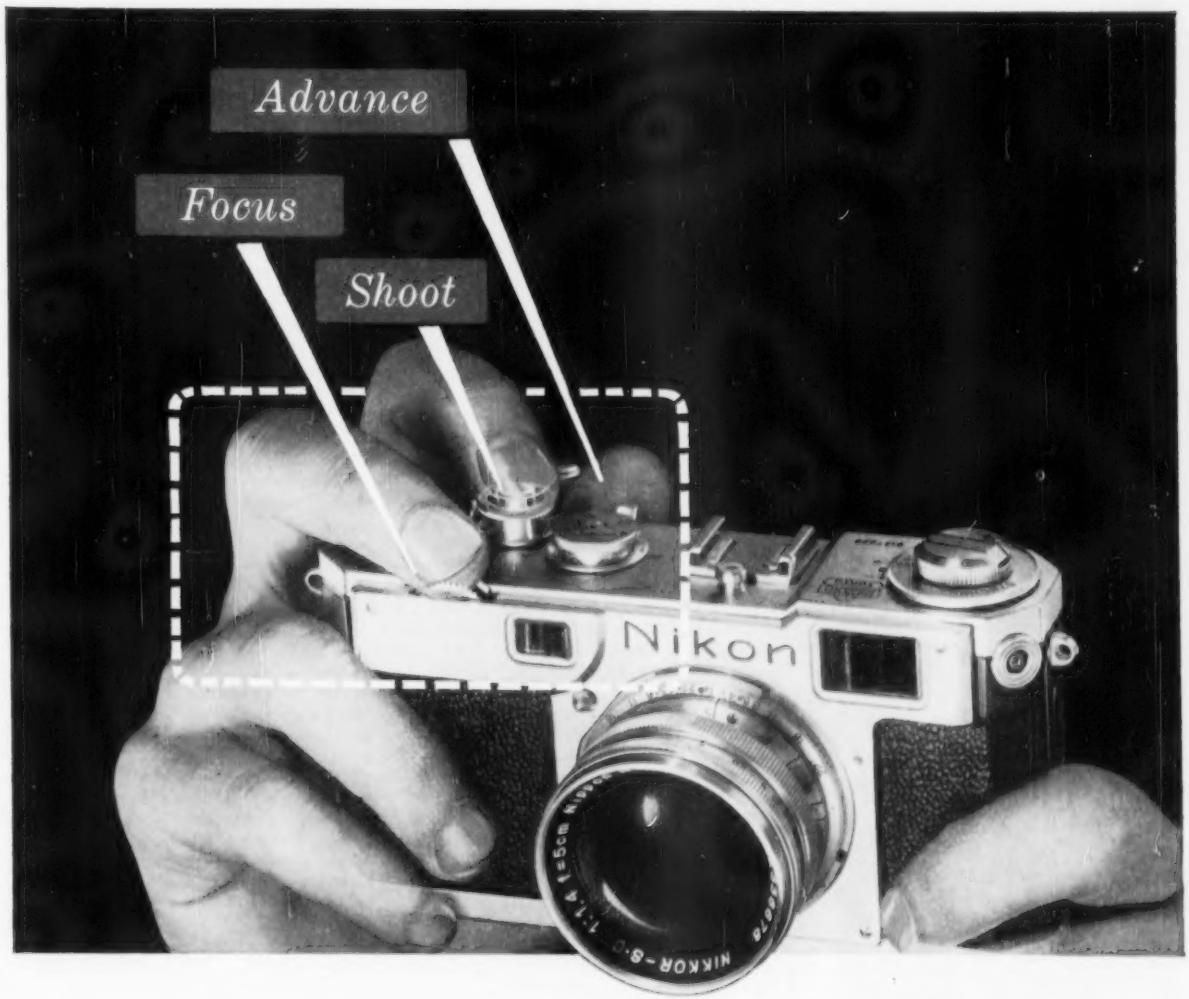

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the Fastest Handling '35' in the Field

Camera quality is important and equally important is how quickly you can put that quality to work.

To get your picture, you must advance the film and focus the lens before you release the shutter. There's no short-cut. You can't skip a single step. It's advance – focus – shoot . . . 1 – 2 – 3 . . . and the more quickly and smoothly you get it done – the more quickly you get to your picture.

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Now try this with any other '35' in the field. Go through the same three necessary operations: advance – focus – shoot . . . and you will understand one reason why so many amateurs and professionals choose the Nikon S-2 . . . *the fastest handling '35' in the field.*

Nikon S-2 with 50mm Nikkor f2 **$299.50**
Nikon S-2 with 50mm Nikkor f1.4 **345.00**

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A 4-element lens gives sharper pictures*...

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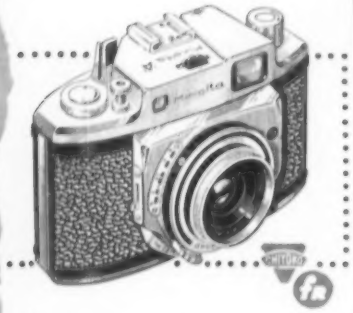
Fully Automatic 35mm camera



*Professional quality begins with a lens having four elements or more. Other cameras in the price range of the MINOLTA 'A' have three-element lenses which give generally poorer definition.

Plus these features: Fully automatic single-stroke film advance and shutter cocking • Brilliant, single-window coupled rangefinder/viewfinder • Famous ROKKOR 45mm 4-element f/3.5 coated lens • Fully synchronized OPTIPER MX precision shutter (1 to 1/300 sec. & bulb) • Click-stop diaphragm.

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by an exhibition of exquisite color prints mounted in the Eastman Kodak section to demonstrate the possibilities of Kodak Type C and Type R color-print materials, the Kodak Flexichrome process, and the new **Kodak Ektacolor Film Type S** (for short exposure) which made its debut at the show. Type S Ektacolor film which comes in standard sheet-film sizes from 2¼x3¼ to 8x10 inches, produces color negatives and, like Kodacolor CU roll film (universal-type) which it resembles in many respects, it can be used with various types of illuminants—but only when there is sufficient brightness to permit shutter speeds of 1/25 second or shorter. (Ektacolor Sheet Film Type B is still available for longer exposures.) To minimize color correction in printing Type S color negatives, Kodak recommends that it be exposed without a filter only when clear flashbulbs are used. For electronic-flash exposures the use of a Kodak Wratten 85 filter is recommended; for daylight, the Kodak Wratten 85C, at a daylight exposure index of 25. Processing of Type S Ektacolor is done in the Kodacolor Process C-22 kits employed for developing Kodacolor CU roll film. It is available in sizes ranging from 16 ounces to 25 gallons. Film prices are the same as for Type B Ektacolor sheet film—the 10-sheet 4x5-inch package listing for $8.09.

Other film news came from Gevaert with an announcement that their new **Gevapan 36 film**, released last spring in 120 and 620 roll-film sizes (rated at 250/160) would be available shortly in various sheet-film sizes from 4x5 up; **Gevaert Dandi Pan** roll film is supplanting Dandi Ortho, but Gevachrome, a standard orthochromatic emulsion, will continue to be supplied for the indefinite future. In addition, the replacement of Gevaert Novabrom projection paper, an old, old stand-by, was announced; its successor is a fast cold-tone paper with a brighter-white base tint—**Orthobrom.** The new paper comes in 5 contrasts and 5 surfaces.

Camera and camera accessory news was fairly sparse. A new **Diax Ib** camera was shown by Karl Heitz, Inc., distinguished by the fact that in place of a coupled rangefinder, the camera has three individual viewfinder windows delineating the fields for 35-, 50-, and 85/90-mm lenses. This camera is similar in most other respects to the Diax IIb and is priced $30 less than the IIb with the same lens equipment. . . . The makers of the Beattie Portronic automatic portrait camera offered the **Beattie Varitron,** Models D and E, which are apparent adaptations of the original portrait camera redesigned for photographic data recording purposes. They can be fitted with 35- or 70-mm film magazines and with a wide variety of lenses. Remote control and automatic or semi-automatic operation are afforded by these instruments which are relatively inexpensive for the functions they serve. Manufacturer is Photographic Products, Inc., Anaheim, California. . . . In the way of camera accessories, Nikon, Inc., previewed the **Nikon Underwater Housing,** a $400 item providing every conceivable convenience for 35-mm underwater still photography—built-in filters, external controls for all camera adjustments, etc. . . . E. Leitz, Inc. introduced a new **Leicameter MC** which fits on top of and couples with the Leica M3 camera. It is thinner and lighter than the old model and has an internal switching device in place of an external baffle to change from high to low light-level readings or *vice versa.* As with the older model, a supplementary booster cell is available—to increase sensitivity 6x. The price of the meter and booster is $39; the meter alone, $33. Incident-light attachments are provided for the meter alone and for the booster cell. . . . E. Leitz also unveiled the **BWOOU-M,** an M3 version of their adjustable four-legged copying attachment, which takes bayonet-mount Elmar and Summicron lens and the M3 camera body—priced at $33. . . . A supplementary **35-mm magazine back** for Rolleiflex and Rolleicord cameras which loads 50 feet of film was shown by the Hollywood Equipment Co., priced at $165. In several months a 70-mm film magazine of the same type will be provided. This organization also demonstrated their new **Falcon** remote-control **Motorized Pan and Tilt (tripod) Head** designed for industrial TV and high-speed motion-picture camera use—a closed circuit 110-volt a-c operated device that has been field-tested in mines at distances of 3 to 4 thousand feet. The unit is nonmagnetic and can be adapted to operate a three-lens ciné-camera turret as well as a Berthiot zoom lens mounted on the turret.

In the way of movie equipment, Davis & Sanford showed their new **3V Panoramic Titler,** a $29.50 kit that permits titles to be superimposed over any scene within camera range while the camera is fixed or being panned. . . . Kling Photo Products unveiled a de luxe **blimp** for their **Arriflex** 35-mm sound-on-film ciné reflex camera, featuring illuminated and magnified controls (about $1,600); also an **animation device** for the Arriflex with a time-lapse mechanism that is attached to the camera motor control—at $495.

Several developments in electronic flash highlighted the light-source category. Both the Hauman Instruments Co. and Graflex, Inc., disclosed the fact that the life of Olin-Mathieson 240-volt dry batteries used in Hico-Light Models 109 and 228 and in the Stroboflash I, respectively, could be substantially prolonged by recharging. The particular battery, the **Winchester 924,** was exhibited by Olin, who attributed the unique rechargeability feature to a new method of purifying the component manganese ore, which resulted from the use of electron microscopy in the development program. The two Hico-Light units now have an integral recharging circuit for the purpose, whereas Graflex is supplying an auxiliary booster for the Strobo-Flash . . . Graflex also took the occasion to introduce a new power unit for their Stroboflash II, III, and IV electronic-flash outfits—the **Nicad-AC Converter** which incorporates facilities for a-c operation (for the first time in the SR line), and the use of rechargeable nickel-cadmium batteries (as many as 1,000 complete recharges over a period of 15

NOW there are 2 Minolta REFLEX CAMERAS...

... *for* **PERFECTIONISTS** *who are not afraid of saving money*

Yes—now there are *two* superb reflex cameras for those who can recognize extraordinary quality even under the disguise of an extraordinarily low price tag. At $99.50, the MINOLTA 'Autocord' is ranked by leading professionals as fully the equal of automatic twin-lens reflex cameras in the $200-plus category. For just a bit more, the MINOLTA 'Autocord L' offers every feature of the 'Autocord' plus a built-in exposure meter system that pretty nearly thinks for the user. It's difficult to choose between the two—but it's the kind of difficulty you will enjoy. One thing is certain—whether you choose the 'Autocord' or the 'Autocord L', depending on your individual needs, you'll be getting more than your dollar's worth on every fifty cents you invest. That goes for performance, ruggedness, picture quality—everything! I.e. — you can't lose . . .

1

2

1 Minolta AUTOCORD
Fully Automatic 2¼ x 2¼ Twin-Lens Reflex

Fully automatic film advance and shutter cocking • One-finger, single-stroke helicoid focusing • Famous ROKKOR 75mm 4-element f/3.5 coated taking lens • 75mm ROKKOR f/3.2 coated viewing lens • SEIKOSHA MFX fully synchronized precision shutter (1 to 1/500 sec. & bulb) • Brilliant Fresnel Viewing Screen **$99.50**

2 Minolta AUTOCORD 'L'
Fully Automatic 2¼ x 2¼ Twin-Lens Reflex

Every Feature of the MINOLTA 'Autocord' PLUS: Built-In Exposure Meter • Direct-Reading Light-Value Scale • Super-Simple Diaphragm and Shutter Calibration in Terms of Light Values **$124.50**

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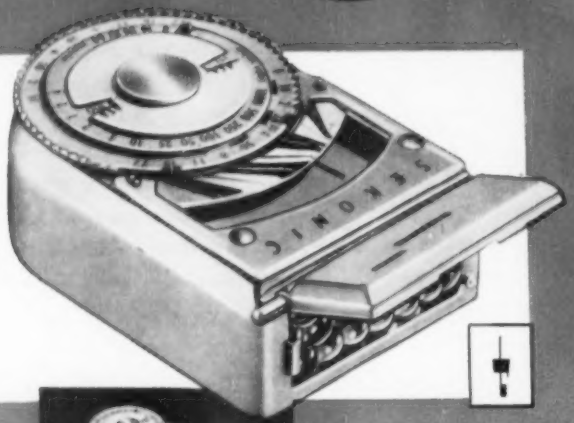
LEADER DELUXE

$8.45, complete with leather case, incident-light attachment and neck strap.

$3.50 extra for SEKONIC Light Amplifier Attachment, complete with incident-light attachment and leather case.



YES — the amazing new SEKONIC 'Leader Deluxe' compares favorably with exposure meters selling for nearly four times its price. That goes for overall performance features, quality components, precision craftsmanship and ruggedness. Latest achievement of the world-famous Sekonic Electric Co., of Tokyo, Japan, pioneers of low-cost precision exposure meters in America, the SEKONIC 'Leader Deluxe' is unquestionably the best buy in exposure meters today.

For those who must occasionally take accurate exposure readings under extremely poor lighting conditions, the low-light sensitivity of the SEKONIC 'Leader Deluxe' can be boosted 400% by means of the ultra-sensitive SEKONIC plug-in light amplifier attachment. An exclusive feature of this attachment is that it is perfectly matched to any and every SEKONIC 'Leader Deluxe' without factory adjustment.

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permits readings in extremely dim light

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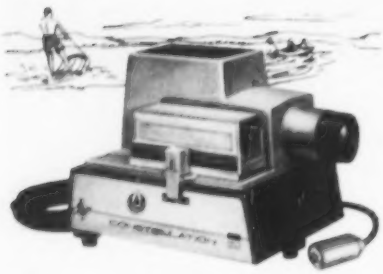

New Constellation

500 WATT SLIDE PROJECTOR

The new Constellation is the only 500 watt projector with automatic slide changer and remote control selling for less than $100! Has 4-inch f/3.3 lens to fill 40" screen at 10 feet. Automatic changer uses popular Airequipt 36-slide magazines. Modern styling, precision-cast aluminum body, 15-foot remote control cord, quiet blower and heat absorbing glass element protect slides.

Constellation with automatic changer and remote control	$89.75
Constellation with automatic changer	$67.75

Graphic® 35

CAMERA

The only camera in the world with Push-Button Focusing and Spectramatic Flash Settings. Together, these features make it easy for everyone to take beautiful indoor or outdoor pictures in black and white or color. Other features include: double exposure prevention, self-timer, choice of f/3.5 or f/2.8 lenses, precision all-metal body and built-in X-M synchronization at all shutter speeds up to 1/300 second.

Graphic 35 with f/3.5 lens	$77.50
Graphic 35 with f/2.8 lens	$87.50

Pacemaker®

SPEED GRAPHIC and Stroboflash IV

You can do more things better with the Pacemaker Graphic than with any other camera. Portraiture, sports, action, copying, close-ups, and even photomicrography are within its scope. Accepts film receptacles for roll, sheet, pack and Polaroid film. Graphic Rangefinder adjusts in seconds to match wide angle, normal and telephoto lenses. Use with popular Graflite flash unit or Stroboflash portable electronic flash equipment. Pay only 10% down and as little as $13.50 a month for a Pacemaker Graphic.

STROBOFLASH® I

Has a lightweight, easy-to-carry power pack that fits into a coat pocket. Powerful . . . flash duration of approx. 1/1400 sec., 1200 E.C.P.S. rating. Rechargeable dry-cell batteries permit approximately 3,000 flashes per set when you use the Stroboflash Battery Booster.

Stroboflash I (50 watt seconds)	$89.00
Stroboflash II (100 watt seconds)	$99.50

STEREO GRAPHIC®

The low-cost Stereo Graphic features exclusive Depthmaster Auto-focus for the greatest range of sharpness from foreground to infinity of any stereo camera . . . regardless of price. Has automatic shutter cocking, double exposure prevention, built-in synchronization, matched 35mm f/4 color corrected and coated lenses. **$49.50**

Stylist Deluxe

16mm SOUND PROJECTOR

The luxurious-looking Stylist features lightweight portability, quick, easy set-up and ultra-smooth performance. Operates at both sound and silent speeds, sets up for threading in seconds. Lift-off solid cover contains 8" Alnico permanent magnet speaker, take-up reel and speaker cable. Has Triple-Claw movement, reel arms pivot directly into position. **$419.85**

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GRAFLEX *Price-Winning Cameras*

Write Dept. P-116, Graflex, Inc., Rochester 8, N.Y. All prices include federal tax where applicable and are subject to change without notice. Slightly higher in Canada.

AMPRO® Hi-Fi Two Speed!

TAPE RECORDER

LISTEN to the Ampro Hi-Fi recorder at your Graflex dealer's store . . . you'll agree that its clarity and realism truly reproduce the original performance. A crossover network system combining two electronically balanced speakers achieves matchless realism through perfect tonal separation.

HI-FI "Tweeter-Woofer" SPEAKERS

The lower frequencies are reproduced by a 6 x 9 inch elliptical Alnico-5 "woofer" and the higher frequencies by a 3½ inch round Alnico-5 "tweeter." The combined frequency response is 40 to 15,000 c.p.s.

ELECTROMAGNETIC Piano-Key CONTROLS

Positive electromagnetic operation eliminates all mechanical linkage and provides push-button operation for starting, stopping, recording, playback and rewind. Interlocked switching makes it impossible to accidentally erase, jam mechanism, spill or break tape. Has automatic shut-off.

DICTATING AND TRANSCRIBING

An accessory remote control microphone combined with piano-key operation makes the Ampro Hi-Fi a practical, economical dictating machine. Accessory start-stop-reverse electronic foot control and monitoring ear phone provide full transcribing ease.

Other features include: electronic recording-level eye, recording speeds of 7½ and 3¾ i.p.s., safety lock to prevent accidental erasure, fast forward speed of 72 i.p.s. and automatic selection locator, fast rewind of 120 i.p.s., mixing control for professional "voice-over" radio-phono sound.

Graflex dealers offer convenient Graflex Easy Payment Plan. Monthly payments as low as $13.50.

Ampro Hi-Fi Two Speed Recorder	$249.95
Ampro Hi-Fi Two Speed Recorder—Radio Combination	$284.45
Matching Console Speaker (accessory)	$ 69.95

ADD EXPRESSION TO YOUR MOVIES

with Wollensak

TELEPHOTO LENSES

for 8mm and 16mm Cameras

TELEPHOTO ATTACHMENT
for Brownie and B&H 220 and 252

1½ f/3.5 TELEPHOTO RAPTAR IN FIXED FOCUS
for 8mm Cameras

1½ f/2.5 TELEPHOTO RAPTAR IN FOCUSING MOUNT
for 8mm Cameras

Telephoto lenses are indispensable to good movie making. Use a telephoto lens to identify the person or place in your movie . . . bring distant action up close . . . pick up details . . . shoot candid sequences.

Telephotos are excellent portrait lenses giving true close-ups without distortion in perspective.

The Wollensak Telephoto Attachment is available for the Brownie and Bell & Howell 252, 220 Movie Cameras.

Wollensak's complete line of lenses offers a choice of speed and focal lengths to fit most cameras and pocketbooks.

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years are claimed). The unit costs $102 with a 4-volt nickel-cadmium battery included. . . . Scheibe Engineering, Inc., of Burlington, Wis., who recently acquired the a-c line of SR electronic-flash units from Graflex, introduced three new units, all a-c powered: The self-contained **Starliter 50** which features a continuous light-intensity adjustment—$137 with 16-inch reflector and modeling lamp; the **Starliter 500 and 1,000,** multiple-lamp units with a console-type control panel and a variety of reflectors and power-control facilities—power packs listing at $333 and $495 respectively. . . . American Speedlight Corp. introduced their **400 Ascorlight Series**—designed to operate on a-c or rechargeable nickel-cadmium batteries. Price of the 200-watt-second A-405 unit with 6-volt battery is $289; 100-watt-second A-406 with 4-volt battery, $189.

A varicolored transparency viewer with a 10x10-inch screen—the **Aristo Spectro-con** — illuminated by varying proportions of light emitted by red and blue-green cold-cathode grid tubes was shown by Aristo Grid Lamp Products Inc. The effective color temperature can be varied continuously between 2000 and 10,000 K by a single control knob. It is relatively cool after long periods of operation. Price is "under $275." Also exhibited by Aristo was the **Type B Hinelight** for shadow-free illumination—a $395 unit consisting of cold-cathode tube segments concentrically mounted around a camera lens aperture. This equipment is used with an 8x10 view camera. Rounding out the company's line-up was the **Aristo Mic-O-Lite,** a small ring-shaped cold-light source designed to produce shadowless lighting on small objects.

Most impressive of the darkroom equipment unveiled at the trade show was **Simmon Brothers' electronic variable-contrast timer** for printing variable-contrast papers of the Varigam type. This $135 equipment was fully described in a feature article in the October issue of POPULAR PHOTOGRAPHY. . . . Simmon Brothers also introduced a 45-degree hard-coated surface mirror device for making horizontal enlargements with various Omega enlargers without disturbing the upright position of the enlarger. The mirror, costing $19.50, can be attached to various lenses by Series V, VI, and VII adapter rings. . . . Another enlarging accessory was an improved version of the **Saunders Bord-R-less Easel** with a non-skid rubber bottom, a yellow base to facilitate focusing, and a height of 1 inch for ready use with autofocus enlargers—at $14.85. . . . Still another ingenious enlarging aid was the **Hoffmaster Glass Negative Holder** which holds wet or dry negatives firmly in place by spring tension. It is made of aluminum and brass, and comes in a model for Elwood 5x7 enlargers at $55 and 5x7 Eastman, at $50, holding either 5x7, 4x5, or 3½x5½-inch negatives.

Apropos of color-print making, there were various devices for nitrogen-burst agitation and for timing three-color exposures through color negatives. Lektra Laboratories, Inc., introduced a complete new line of fairly inexpensive equipment of this type: a **gaseous-burst agitation**

G-E FLASH NEWS

HERE'S WHAT HAPPENED WHEN TOP EXPERT TESTED NEW G-E POWERMITE BULB

Howell Conant reports on remarkable performance given by tiny new bulb!

"I was assigned to cover a rehearsal of an NBC-TV color spectacular," says Howell Conant, veteran magazine pro. "I knew that meant taking all sorts of shots, from 3 feet to 1000 feet, in color and black and white. I also knew I'd have to shoot rapid fire—take a great number of shots quickly.

"There's only one flash bulb that combines terrific punch with the convenience so necessary for these location jobs—the new G-E PowerMite. With its 66% boost in light output, PowerMite is just about the most versatile bulb in the world! I slipped six packs of PowerMites—both blue coated and clear—into my pockets, and hardly knew they were there. Then, with my Leica M3, a few rolls of film, and my PowerMites—I was off!" *(continued next page)*

For pictures at extreme left, Conant used Daylight Color Film (ASA 32) with blue PowerMite M2B. At shutter speed of 1/50th, Guide Number was 90. Second strip of pictures was taken with Indoor Color Film (ASA 25) and clear PowerMite M2, using the same shutter speed and Guide Number. Distances varied from 4 feet to 65 feet. 3-inch polished reflector used with flash gun on camera for some shots—extension flash as far as 20 ft. off camera on others.

Bambi Linn and Rod Alexander, dancing stars, stopped by PowerMite. Exposed for 1/50 second at f/4.5, effective flash of light was actually 1/110 sec.

This 4 foot close-up was taken at f/19. Note color fidelity. At this short distance, very little light bounced off walls. Always open up a little on close-ups.

NEW G-E POWERMITE BULB STARS AT NBC SPECTACULAR

Howell Conant Shoots Black and White at 1000 Feet—Color at 65!

"I really put PowerMite through the paces," says magazine pro Howell Conant. And here's his report:

- Clear PowerMite stops action—its light burst is actually 1/110 second. Gives a Guide Number of 90 when used with flash-type color film rated at 25.
- New blue PowerMite, when used with outdoor color film rated at 32, also gives Guide Number of 90. You can change from Type F and clear PowerMites to Daylight film and Blue PowerMites without changing Guide Numbers.
- Here's how PowerMite gets B&W shots at 1000 feet: f/1.4 at 1/25th; develop Tri-X in straight Dektol, 5 min. at 75°.

"These NBC shots speak for themselves," says Conant. "This new bulb is the greatest thing that's happened to flash photography since G-E introduced the 'midget' bulb 16 years ago!"

PowerMite shoots for distance. With Tri-X Guide Number of 250, Conant used single PowerMite to capture girl (center) 175 ft. away. Exposed for 1/25 sec. at f/1.4, this shot received normal development. Distance to first building behind girl, 250 ft.; to second building, 375 ft.; to building at far right, 575 ft.

EASIER TO CARRY...QUICKER TO USE...THE PERFECT BULB FOR TOUGH ASSIGNMENTS!

PowerMites are so tiny and compact, they fit neatly into small compartment in Conant's slim carrying case.

On the set, Conant easily slips six sleeves of PowerMites into his pockets—they scarcely make a bulge.

With small camera, small reflector, tiny PowerMite bulbs, Conant is free to concentrate on subject and composition.

G-E FLASH CHART

UP-TO-DATE FLASH EXPOSURE GUIDE NUMBERS FOR NEW G-E POWERMITE BULBS (M2 AND M2B) including data on all new films

Exposure: Use X or F synchronizer setting at 1/50 second or slower. For f/number, divide proper Guide Number by distance in feet from lamp to subject.

POWERMITE M2			
Film	Tungsten Exposure Index	*Guide Numbers*	
		3"-4" Polished Reflector*	4"-6" Polished Reflector* with adapter
Kodachrome "F"	16	70	55
Panatomic-X	20	80	60
Kodacolor CU** Ektachrome "F" Anscochrome "Flash"	25	90	70
Supreme	32	100	75
Verichrome Pan All Weather Pan Plus-X	50-64	130	95
SuperPan Press	80	180	140
Tri-X, SX Pan	160-250	250	190
POWERMITE M2B			
Kodachrome Daylight	10	50	36
Anscochrome Daylight Ektachrome Daylight	32	90	65
Kodacolor CU**	32	90	65

*NOTE: for satin reflectors, open lens one half stop, or multiply Guide Number by 7/10.
**Use PowerMite M2B with Kodacolor for daylight shots *only*. All others, use PowerMite M2.

PERFORMANCE DATA:

Range of usefulness: Normal exposure is obtained from 4 feet at f/22 to 45 feet at f/2 with Anscochrome and Ektachrome roll film; with fast black and white film, normal exposure range is 7 feet at f/22 to 125 feet at f/2.

Reflectors: 3 to 4 inch polished reflectors especially designed for PowerMite are tops in efficiency—pour nine times as much light into the picture area as the bare bulb would.

Adapters: Low-cost adapters currently available center PowerMites accurately and give the same even coverage for most reflectors as is obtained with larger bulbs.

Color quality: M2 on type "F" and M2B bulbs on daylight-type films give excellent color quality without filters. At slow speeds—1/25, 1/10, 1/5, 1/2 and 1 second—M2 gets beautiful effects in combination with prevailing tungsten illumination.

Synchronization: It's F and X-Synchronized. At 1/50 second, you get the full flash of the light at all f stops.

Multiflash: In combination with repeating flashtubes or other types and sizes of flash bulbs, PowerMite gives new versatility in controlling the amount of light in limited picture areas.

Focal Plane: Can be used with all focal plane cameras with F or X synchronizer setting.

Progress Is Our Most Important Product

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WITH THESE SENSATIONAL NEW ACCESSORIES UNMATCHED IN THE FINE CAMERA FIELD . . .

Rapid-Sequence Spring Motor

Ten photographs in rapid succession can be taken with a single winding of this powerful spring motor as fast as the photographer is able to press the release button. Ideal for sequence sport shots, time and motion studies, industrial and scientific processes, chemical reactions and laboratory requirements.

Electric Motor and Magnetic Remote Control

Permits remote-controlled electrical operation of camera as far as 75 feet away. By a single push-button, the shutter is released, the film advanced, the frame counted and the shutter wound for next exposure. Ideal for photographing animals, birds, insects in natural habitat, candid work, progress photos and similar situations.

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50-Foot Capacity Bulk-Film Magazine

Attached to the camera, it can be used alone or with the Electric Motor or Rapid-Sequence Spring Motor to take 420 successive standard 35-mm. frames (50 feet of film) without reloading. Easily attached to camera, it can be loaded in daylight. Particularly useful for filming records and microfilming work.

Extension Bellows and Tubes

The Extension Bellows, an exceptional aid in macro-photography accommodates extension tubes and all lenses. The extension tubes in various lengths for macro and microphotography offer optical ranges from life-size to more than 10-time magnification and permit normal or reversed lens attachments.

PRAKTINA FX

Guarantee, Registration and Import Certificates furnished with each camera

The One and Only 35-mm. Single-Lens Reflex Camera that gives you all these features:

- Internal automatic diaphragm.
- Penta-prism eye-level viewfinder interchangeable with Waist-level finder, both utilizing split-image rangefinder.
- New, separate Newton optical viewfinder for fast action and available light photography.
- New, recessed bayonet mount affords split-second lens interchangeability.
- Focal plane shutter with speeds 1/1000 to 1 second.
- Synchronized for regular and electronic flash.
- Plus many other desirable and exclusive features!

With f2.0 58-mm. C.Z.Jena automatic Biotar lens **$297.50**

With f2.8 50-mm. C.Z.Jena automatic Tessar lens **$239.50**

PP-4

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Mail this coupon today for your free copy of "Masterpiece of Simplicity," a valuable brand-new booklet packed with information about the new, incomparable Praktina FX, its valuable accessories and its many applications for sports, professional, industrial and other specialized uses.

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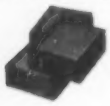
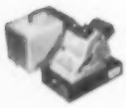


24-slide magazines each $1.49
Magazine carry case $8.98



Stereo Theater Carry Case $10.95

AC Power Cartridge 8-foot cord . . . $4.95

With variable light control — $9.95

Pops 24 slides "on-stage" at the flick of a finger . . . brilliant color in breath-taking true-to-life dimension. Everyone can enjoy the Stereo Theater—it adjusts instantly to all eyes. Ground optical parts make viewing an exciting thrill.

At photo stores everywhere.

Write for free descriptive literature

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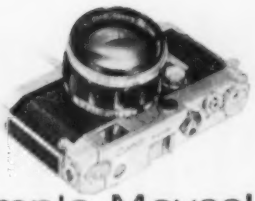
distributor with various accessory fittings, a cycling timer, and also a pair of **Tri-Color Timers** for Type C color-print making. . . . The Arkay Corp., Milwaukee, which had formerly specialized in dryers, washers, and light bars, showed a brand-new line of processing equipment, including self-draining temperature-control tanks, inserts, portable sinks and stands, and particularly a **Nikor reel rack** for color or black-and-white processing—a unit designed to fit a 3½-gallon processing tank and accommodating 30 35-mm reels or 18 No. 120 film reels, plus a test strip.

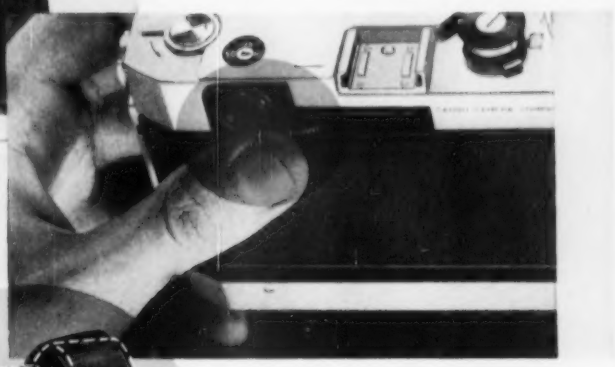
An interesting contribution by Hanimex (U.S.A.) Ltd. was their $34.50 **Pentacolor safelight** providing four different safelight colors, plus white—a stand-type unit mounted on a swiveled yoke, with a 4.7x7.4-inch diffuse screen area. . . . Plymouth Products introduced a new long-lasting paper developer claimed to be particularly resistant to aerial oxidation —**Ethol LPD**. . . . Edwal Scientific Products Corp. highlighted their new **Edwal No-Scratch** solution for filling in scratches and abrasions on physically damaged negatives. . . . Finally, Brown-Forman Industries introduced a new improved formula of their **BFi #30 Hypo Eliminator**—a clear and odorless solution containing a small charge of hypo to keep the solution catalyst from evaporating when the solution was kept for any appreciable time without being used The **BFi Processor** is now being furnished with a film-loading accessory and also with two sets of labels, for Ektachrome and Anscochrome processing, respectively. In addition, Brown-Forman took the wraps off their long-projected **BFi Automatic X-ray Film Processor and Iso-Thermal Dryer**, a capital production unit intended for medical and industrial use.

NAVA Exhibits. The trade show of the National Audio Visual Association was comprised mainly of film-strip and continuous slide projectors, movie-projection equipment, screens, tape recorders, and various accessories. Competition among projector-lamp manufacturers was at a high pitch. Sylvania expanded its line of short **Tru-Focus** lamps for low-silhouette projectors to take in 5 different sizes: 2 horizontal-or-vertical-burning lamps (one 500 watts and the other 300) and 3 vertical burning only (2, 300 watts and one 500). The lamp socket comes with larger holes than the prototype model, for better ventilation. . . . General Electric unveiled its entry in the low-silhouette projector derby—a baseless, **Gold Top projection lamp** (in 300- and 500-watt sizes) designed so the filaments are upright when the lamp is placed in a horizontal position. The lamp is only four inches from the tip of the bulb to the end of the glass socket, and it has a built-in fuse to protect the projector and electrical circuit when the lamp burns out. . . . Both Westinghouse and Radiant are biding their time as far as short, low-silhouette lamps are concerned. But Westinghouse used this show to introduce a new **1200-watt projection lamp** for 16-mm ciné projectors. This is a replacement for 1,000-watt lamps with a more compact

Designed To Meet Every Challenge Of 35mm Photography... Only Canon MASTERCONTROLS All Operations In A Few Simple Moves!



Only CANON features a single-stroke trigger that winds shutter, transports film, sets film counter . . . in the most practical rapid-wind position ever incorporated in a camera. When not in use, or when it may be desirable to wind by knob, the trigger folds into the camera base, *completely out of the way*. Indisputably, Canon V is the *fastest* action camera devised to meet today's ever increasing uses for fast action photography!



Only CANON features a tri-position viewfinder that adjusts to today's three most important settings—35mm, 50mm and RF magnified rangefinder view. The growing trend towards use of shorter focal length lenses (at the extremely fast apertures made possible by Canon's new lenses), is answered by Canon's three built-in, full-field finder views. *A flick of the finger selects them!* With longer focal length lenses, or high-speed short focal length lenses (both characterized by minimum depth of field), Canon's brilliant magnified rangefinder focusing image is a "must"!

Only CANON features automatic, built-in parallax correction for your auxiliary viewfinder. Focusing any of your Canon's lenses simultaneously actuates your viewfinder, and *automatically* eliminates parallax at all distances. This exclusive Canon feature is particularly necessary with longer focal length lenses, where image framing is generally more critical, and extraneous background kept to a minimum.

See these, and Canon's many other advanced features at your Franchised Canon Dealer. And find the answer to any specialized problem in Canon's free booklet showing the over 150 accessories that make up the Canon System of Photography! Write today!

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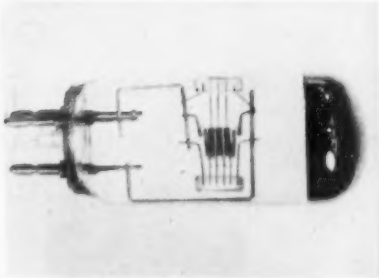

Gold-tipped G-E projection lamp is designed for use in low-contour projectors; its filaments are in vertical position when lamp is horizontal—for maximum life, best operation.

filament construction providing extra screen brightness.

In the line of slide-projection equipment, GoldE introduced an attachment for their standard 3¼x4-inch projectors which permits **overhead image projection** wherever such improvisation is called for. The attachment is priced at $49.95; the 1,000-watt GoldE blower-cooled standard projector costs $139.95 with this equipment. . . . Contrary to the trend toward streamlined equipment in the amateur field, American Optical has found that film-strip projectors of conventional design still commanded the respect and patronage of the professional audio-visual field, so a new **AO MC Custom Projector** was introduced at the show based on the old AO Educator projector design with an attractive brown finish, 7-mm heat-absorbing glass and facilities for film-strip, single- and double-frame slide showing—a 300-watt model at $84.50 and a 500-, at $93.50. . . . Viewlex, too, introduced a special projector the **V-500** for strips and 2x2-inch slides, at $109.50, through audio-visual dealers only. . . . An extremely unique and versatile transparency projector was exhibited by Projection Optics of Rochester, N. Y.—the triple-purpose **Transopaque** which employs a single head for table projection and for showing opaque as well as transparent copy. The unit can be purchased for any of the three types of copy and the missing facilities added when wanted.

As for movie equipment, Eastman Kodak introduced their dual-purpose lens converter for 16-mm Kodascope Projectors. Known as the **Ciné Kodak Bifocal Converter,** the unit is attached to the standard 2-inch *f*/1.6 Ektanon projection lens. Mounted in one direction it produced the effect of a 2½-inch projection lens; in the other, a 1⅝-inch lens.

Two specially novel projection screens made their debuts at the show. The **Lenscreen "625"** by Polacoat, Inc., for rear projection produces a brilliant image on a glass or plastic-type lens screen whose brilliance and contrast are unaffected by daylight. Price is $64.50. . . . The **LSC Lightmaster** screen made by Projection Screens, Pacoima, Calif., features ribbed construction producing an extremely wide angle of brilliant view. Price of the 30x40-inch portable model is $45.—

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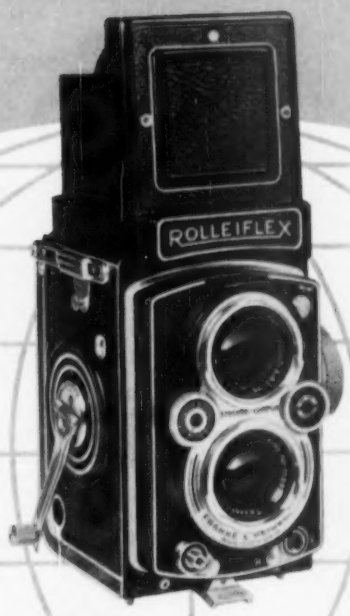

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automatic film loading, film transport, shutter cocking; Synchro-Compur LVS shutter; with Zeiss TESSAR f:3.5 lens $202.50 — with Schneider XENAR f:3.5 lens

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completely automatic; Synchro-Compur LVS shutter permitting speed/diaphragm coupling. Choice of either Zeiss PLANAR or Schneider XENOTAR f:2.8 lens

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World-wide preference for Rollei cameras stems from their sound, basic design and construction, their fine craftsmanship, their unmatched performance and their proved dependability throughout the years. At these new low prices, possible only because of increased demand, you can now own one of these fine cameras at worthwhile savings. But demand will be heavy, so better place your order soon to insure early delivery. Visit your dealer today, or write for literature.

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Cat's eyes

By reflecting and multiplying the dimmest of night light a cat can see in all but total darkness. More astonishing, perhaps, is how well cats see in bright sunshine despite their sensitive capacity for night vision. They can narrow their pupils to such "microscopic" slits that, to the cat's eyes, high noon and midnight are very much the same.

You and your camera, given eighteen lives, will never master light like a cat. But you'll come a lot closer — have greater control over any picture situation—with ENTECO Filters and Lens Attachments. For better shots around the clock, shoot yours through an ENTECO, the superior filter.

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CAMERA CLUBS by Whit Hillyer

There's a great opportunity for more camera clubs to lend a helping hand to teen-age groups and individuals who want to know something about photography. I'm aware that several clubs around the country have got into this with both feet. But the mail proves conclusively that the field is almost untouched.

At this point I'm addressing those camera club members who are concerned about the future of their organizations—who want to insure the successful continuance of the group. Several teen-agers have written to tell me that the clubs in their vicinity don't welcome the younger set, and ask what they can do about it. Others have simply given up at the local level and are trying to start their own teen-age camera clubs by correspondence. (This has its points, indeed—but you and I know that it's no substitute for regular meetings and print analysis by experts.)

Then there are the harried high-school camera club advisors who plead for assistance and program material. These folks aren't incompetent—they're usually just plain overworked—too busy to scout around for inspiring programs or visiting experts. In some cases they are very capable audio-visual instructors who know plenty about the end use of photography but very little about how effective movies and still shots are made and processed.

The need is there, all right. It calls for help from you who have experience in matters photographic. As you read this, just remember that your cronies aren't always going to be around on club nights, and that adequate replacements for them and for you are a club's life blood, both artistically and organizationally. Spend a little time with the kids now and then, admit them as guests (at least) to your sacrosanct gatherings. You'll thus build some bona-fide dues-paying award-winning members for the future.

PSA Starts Hawaiian Chapter

The Hawaiian Chapter of the Photographic Society of America was officially chartered in June, thus becoming the fifth group of its kind in the United States. Considerable preliminary work in organizing the chapter was done by Capt. R. F. Redden, USN, who was first chapter chairman; Fred Itagaki, PSA district representative; Joe Konno, present chairman; and Mrs. Helen Davis of *Camera Club Council of Hawaii.*

Jersey Clubs to Convene

The second annual convention of the *New Jersey Federation of Camera Clubs* will be held Sunday, November 11, at the Hotel Robert Treat, Newark, N. J. Program will include a slide lecture on design in art and photography, by John and Amy Walker of Brooklyn. (This is the same feature they prepared for the PSA convention at Denver.) Other features will include lectures and demonstrations by Eastman and Ansco representatives; an invitational exhibition by leading New Jersey photographers; and a final banquet. For further details write to Frank Gaynor, 46 N. Jefferson St., Orange, N. J.

Request from Mexico

The *Panthers Photographic Club* (Foto *Club Panteras*) wants to include members throughout the world. Only condition is that the applicant be over 15 and under 21 years old. Correspondence with this group can be in either Spanish or English. For further information, write to the president, Luis Salcedo Rivera, Calle 19, No. 94, San Pedro de los Pinos, Mexico 18, D.F., Mexico.

Taped Stereo Lecture Ready

"This is Stereo," by stereo exhibitor Conrad Hodnik of Chicago, is a recent addition to the PSA recorded lecture program. Illustrated by 64 color slides and 15 stereo slides, the program runs 50 minutes. It can be presented with a 2x2 projector and a tape recorder affording 3¾-in. speed. Stereo projection, where available, adds to the interest. For details, address Fred Kuehl, 2001 46th St., Rock Island, Ill.

Club Has Traveling Salon

If your club wants to exchange print shows, drop a line to J. J. Kane, 331 E. Eleanor St., Philadelphia 20, Pa. He's handling such matters for *Photographic Guild of Philadelphia.* The *Guild* show is being booked for two-week visits, and the group is requesting a reciprocal time schedule.

PSA Sponsors Print Contest

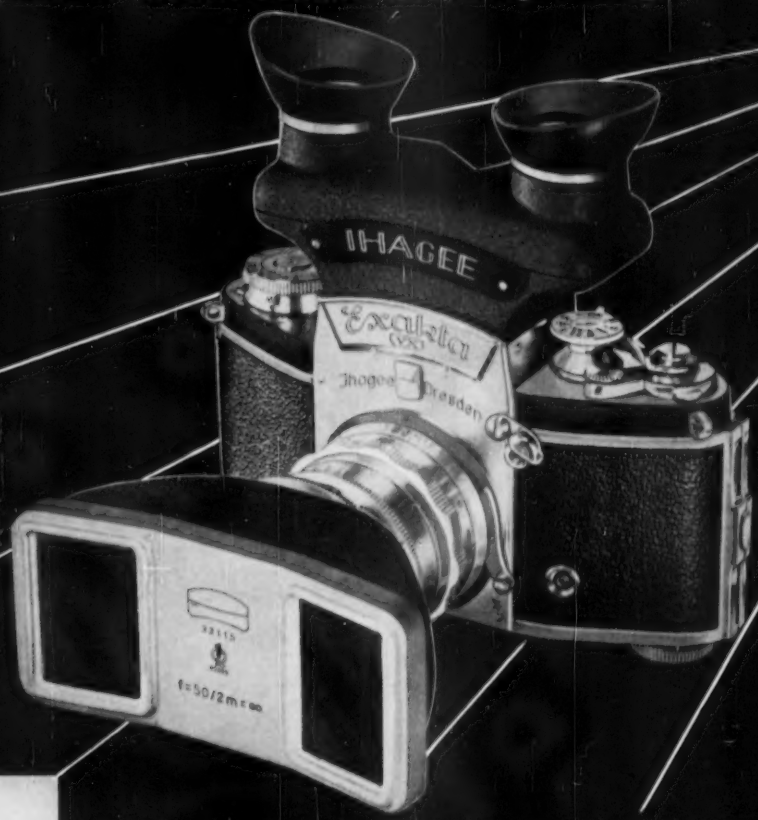
To foster friendship and mutual understanding among nations, PSA is sponsoring a print competition among foreign nationals now enrolled as regular students, teaching fellows, or administrative assistants in any recognized university or college in the United States. Many attractive prizes are offered, the top award being a TWA flight plus expenses. Judges include POPULAR PHOTOGRAPHY's editor Bruce Downes, publisher Andrew Heiskell of *Life*, and editor Don Bennett of the *PSA Journal.* Entries close November 11. Complete details regarding the contest can be obtained from Norris Harkness, Box 1872, Grand Central Sta., New York 17, N. Y.

We hear that *Livermore* (Calif.) *Camera Club* held a "To-Heck-with-Judges" night. On this occasion members explained what they were trying to do photographically and why they liked what they had done. Man, what an opportunity!

If your club hasn't its own headquarters but would like to have, get in touch with Stanley Kerschner, treasurer of *Berks Camera Club*, 550 N. Eleventh St.,

Now... for the first time in photographic history...

you can preview your Stereo pictures in 3-dimensions, before you take them! This is possible only because of Exakta's inimitable, unique design!



Exakta's ingenious Stereo Unit instantly converts Exakta cameras for 3-dimensional photography. This permits you to take 2-dimensional and 3-dimensional pictures of the same subject on one roll of film, and switch from one to the other at will, without an instant's delay!

1. Stereo Device A is for taking 3-dimensional pictures at a distance of six feet to infinity. Attaches to your picture-taking lens.

2. Stereo Device B is for pictures of small objects. Provides a quick and convenient means for taking close-ups in 3-dimensions from a distance of six inches to six feet. Secures to picture-taking lens and has a rotary adjustment for its two prisms.

3. Stereo Viewfinder is designed on entirely new concept. It makes possible previewing your pictures in 3-dimensions! Stereo Viewfinder is interchangeable with penta prism and waist-level viewfinders of Exakta XV and V, and becomes an integral part of the camera.

Stereo Device A	$139.95
Stereo Device B	103.50
Stereo Binocular Viewfinder (3-Dimensional)	59.50

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Everything built-in! All the controls for truly automatic slide projection in one self-contained unit. No dangling attachments. Just insert the magazine, set the switch, press the button and sit back and enjoy your slide show from anywhere in the room.

Shows 35MM, Bantam, and 1½"x1½" Transparencies Intermixed!

Newest of Revere famous *self-contained* automatic slide projectors! Amazingly versatile. Accepts 35MM and bantam slides as well as reflex type 120 color transparencies cropped to 1½"x1½" slide format. Built-in Automatic Pre-Conditioning Slide Chamber reduces need of re-focusing cardboard mounts. Extra Condenser Lens for projecting large 1½"x1½" slides. Super-Coated Anastigmat Lens and advance optical system assures pin-point focusing and uniform illumination of slides. Built-in pointer. Special stereo slot; fade lever; 500 watt lamp; WOLLENSAK F/3.5 lens and a host of other Revere advantages.

Complete with self-contained carrying case in handsome Irish linen, viewing screen, extra condenser, cord and 7 Revere magazine trays, **$159.50**

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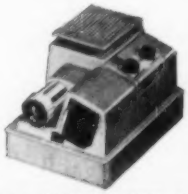
DELUXE 2x2 SLIDE PROJECTOR

Revere "888" Automatic. Completely automatic. Shows 36 slides of all type mounts as slow or as fast as you like—without touching a finger to it. Skips or selects slides at will. Returns slides to file automatically. 500-watt illumination. F/3.5 WOLLENSAK lens. With linen-covered case, viewing screen and 7 Revere magazine trays **$144.50**



Revere "553"/"555" Auto-Magazine. A touch of your finger shows 36 slides of all type mounts, mixed...in sequence, skip-selected or reprojected. Returns slides to file automatically. Choice of 300-watt or 500-watt illumination. WOLLENSAK F/3.5 Coated lens. Case and 7 Revere magazine trays.
555—500-watts **$89.50**
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- You can be sure with a Master, because it's Weston made and has such a long, proved record behind it. Only $32.50 complete.

Self-contained, easiest-to-use, truly versatile, the Master III will provide you with years of perfect photographic results . . . *picture quality that has kept the Master the outstanding favorite everywhere.* See it at your dealers today, or write for free booklet "Help in selecting the right Exposure Meter" . . . Weston Electrical Instrument Corporation, Newark 5, N. J. A subsidiary of Daystrom, Incorporated.

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- DUAL REFLECTOR . . . Gives 2 separate settings for angle of flash head, one for standard and telephoto (50°), one for wide angle (80°).

There's more, much more

- Built-In Diffuser Screen eliminates hot-spots, gives even light coverage.
- Battery Saver Switch located conveniently on flash head.
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- Handsome, Rugged High-Impact Construction that will give you a lifetime of use.

Also a complete range of accessories available.

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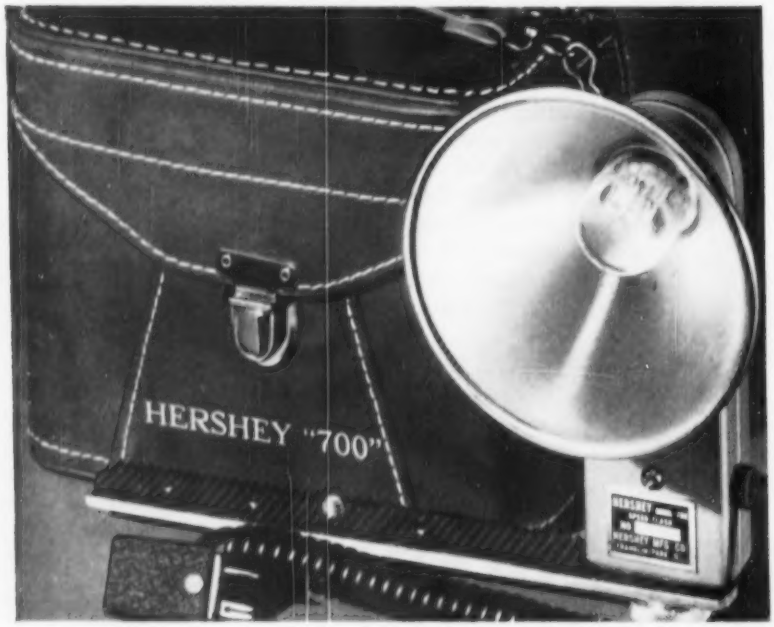

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4. **Complete with built-in AC operation!**
5. **Smallest and lightest flash head! Lightweight, scratchproof Vinyl case—less weight to carry . . . less to think about!**
6. **200 to 300 flashes with just 80c worth of batteries!**

With every Model 700, you receive a duplicate of a Kodachrome transparency, taken with a guide number of 50.

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Reading, Pa. Stan says the *Berks* folks will be happy to pass along their experiences and know-how to any camera club contemplating the purchase of a building. *Berks* really made its own building dream come true in king-size fashion some years back, so advice from these people is good advice indeed.

The *Vailsburg Camera Club* "Viewfinder's" annual issue carries a wonderful cartoon cover showing a painter and a photographer both approaching the same outdoor scene and scowling at each other. Good drawing—and good reproduction, too. Seems to be a print on textured bromide paper.

Nearly 5000 photographers visited Redlands, Calif., for the eighth annual Photo Fiesta sponsored by *Redlands Camera Club*. The usual bevy of beauties modeled

Redlands Camera Club's choice for Miss Photo Fiesta of 1956 is Sheri Young, of Bloomington, Calif. The fiesta, this year attracting nearly 5,000 photographers, is sponsored by the club and held at home-town Redlands.

and competed for the title of Miss Photo Fiesta. This year's winner was Sheri Young of Bloomington, Calif. Judging from Sheri's picture, the judges knew their business.

The *SRO* sign was up long before the show started when the Fifth Annual Santa Barbara International Salon of Nature Photography was put on. Nearly 400 slides were accepted for viewing. Sponsoring club was *El Camino Real Pictorialists*, of Los Angeles. Nature photography continues to make rapid progress in popularity.

A delightful advertisement appeared in the "Rhodesian Picture Maker," bulletin of the *Mashonaland* (Africa) *Photographic Society*. Ad was inserted by a liquor store, and was worded somewhat as follows: "Kill two birds with one stone! Buy your wines and spirits from Blank's Bottle Store, right next door to Whosis' photo shop. P.S.: Don't mix your whiskey with your developer."

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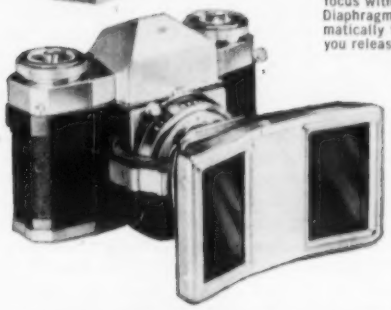

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35-mm TODAY by Bob Schwalberg

Second thoughts on the single-lens reflex

Last August this reporter participated in a perhaps not-to-be-much-noted-nor-long-remembered debate in which he defended the virtues of the coupled-rangefinder miniature against the single-lens onslaughts of eminent reflexman Barrett Gallagher. In presenting my arguments I conceded the major claim made for the mirror-reflex camera, which is, of course, that you get what you see. Very recently, I learned that this is not completely true.

This further enlightenment came about one evening when I used a single-lens reflex to copy some black-and-white prints in order to have slides for projection. The set-up was very simple: camera on tripod pointing straight down; prints flat on the floor under glass; two reflector floods hitting in at 45 degrees from opposite corners of the subject diagonal. Because of the glass, great attention was paid to adjusting the lights to eliminate glaring reflections. Every picture looked prism-perfect before the exposure was made.

When the color film was returned several days later (*I'll explain why color in a few seconds*) there were the lights, right in the picture—blinding blobs of white. After ascertaining that only a pitiful handful of transparencies could be saved by masking with opaque tape and contributing significantly to the noise-level on West 57th Street, I duplicated the set-up using a piece of groundglass in the focal plane instead of film.

This experiment, and three subsequent experiments with that number of other prism-reflex camera models, indicated that you don't get what you see, but a whole lot more than you see. The reason is simply that the mirrors used in these cameras are smaller than the standard 24x36-mm film area. Therefore they reflect less than the total bundle of rays coming in through the lens.

The purpose of the smaller-than-full-sized mirror is both to keep the camera bodies as shallow as practicable and to leave room for the intrusion of the back lens-flanges of the shorter-focal-length lenses. Under normal shooting distances from infinity down to about 3½ feet, this extra picture coverage is not at all disadvantageous—as a matter of fact, most photographers would probably consider it a worth-while safety factor. For close-up work with bellows extension, however, the error can ruin you. Our solution, for the second round, was to mark off our frame limits with the groundglass before loading the camera to actually take the pictures. Even so, a number of slides were spoiled by reflections which lay in the unseen nether regions.

About that color: aside from the Polaroid two-minute transparency film described elsewhere in this issue, the fastest and easiest way to make a black-and-white slide for projection is to copy the b-and-w original on a reversal color film. The other alternatives are to shoot on a b-and-w reversal film (messy processing!) or to print by contact or projection onto another b-and-w film. Of these, the most workable is Eastman's Fine Grain Positive, a very slow blue-sensitive *negative* film so named because of its purpose, which is to turn negatives into positives.

No color film can reproduce a gray scale with perfect fidelity, however, and faint overtones of color will frequently tinge the middle-tone areas. Type A Kodachrome exposed by photofloods is sometimes slightly bluish, sometimes greenish. A somewhat truer black can sometimes be garnered from Anscochrome Flash Type, using an 82-A filter with 3400 K photofloods. Even when the black is slightly bluish or greenish, the transparencies have a richness and range of tones that put enlarging paper to shame. And, let it not be forgotten, your shots are delivered to you in 2x2 cardboard ready-mounts.

Anscochrome Daylight seems to work best with a rating of 64 and a one-stop push in development. For reasons beyond my ken this combination produces higher blue saturation and eliminates the tendency toward brownish neutral colors. Careful comparison with orthodox 32 index exposures and standard processing does not reveal any appreciable increase in grain or decrease in resolution.

The latitude at 64 is almost as great as at 32, and where people do not figure prominently in the photograph it is sometimes difficult to choose, or even to distinguish, between full-stop differences on either side of the 64 exposure. Whenever people enter a color photograph our latitude margin sinks because everyone "knows" exactly how flesh tones should appear. The 64 rating is very reliable, however, and has less tendency to wash out brighter colors than the 32 rating. With the one-stop push, any losses in the shadows will tend to be undetectable as long as gross underexposure is avoided.

A series of tests with Daylight Anscochrome emulsions with Heiland, Hico, Graflex, and Braun-Hobby speedlight units turned up a few things that were hard to accept until reconfirmed by repeated tests. Three basic conclusions were reached on the basis of these tests:

1. That a one-stop push in processing Daylight Type Anscochrome does not in any practical way affect electronic-flash guide numbers. The best guide numbers with the push were no better than without it, from the standpoint of over-all density. However . . .

2. When critical professional photographers are shown identically exposed test

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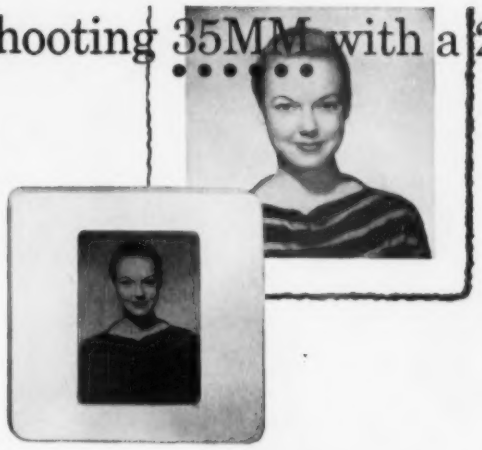

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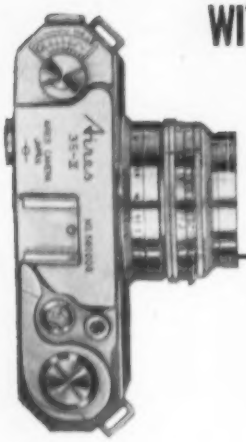

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rolls they will almost invariably pick the one-stop push. This is very largely because of the greater purity in the whites which much more closely resemble the bluish-whites that 35-mm photographers have been conditioned to prefer by twenty years of Kodachrome. The one-stop push also helps to crisp-up dully illuminated shadow areas which are sometimes felt to be too flat with standard exposure and processing.

3. With most electronic-flash units, most of the time, the best Anscochrome speedlight transparencies are obtained when the pale blue 82-A correction filter is used in conjunction with the one-stop processing push.

Curiously enough, there doesn't seem to be any latitude about the use of the 82-A. The darker 82-B gives a decided bluish cast to most city complexions, and when transparencies made with the lighter blue 82 filter are compared with transparencies given the same exposure with no filter, the 82 filtered transparencies appear washed-out, as if from overexposure.

Under favorable conditions, such as in small rooms with white walls and ceilings, higher guide numbers can frequently be employed, and as a matter of fact, better slides may result from these higher guides. The whole purpose of the guide number system is to introduce reliability

Kendall D'Andrade Jr., a freshman at Colgate and a would-be photojournalist, took this unusually composed available-light picture with a Nikon S-2 on Plus-X film rated at 320 and inspection developed.

into a field where the light can be measured only with instruments costing far more than the average camera, and which even so require that we fire a flash for the benefit of the instrument prior to actually taking the picture. Assuming guide numbers on the basis of the most ideal situations cuts this reliability to the bone, and who are you fooling anyhow?

Anscochrome Flash Type, which is balanced at 3800 K for clear flashbulbs works very well with 3400 K photofloods when an 82-A filter is used with a speed index of 20. With a one-stop push, this index may go as high as 32, but 25 looks a little better.

Anscochrome Type 532, the motion-picture material balanced at 3400 K, and available in 100-foot Eyemo loads, seems to give its truest color rendition with a speed rating of approximately 50-to-64, with a one-stop push. Again, this push affects color quality far more than it does density, with normal processing having a tendency to be either green or brown. Our tests with 532 are of limited value because all of our film came from the same hundred-foot roll. It does appear likely, however, that slight magenta filtering will prove generally desirable.—

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WHAT'S NEW - TRADE NOTES AND NEWS

All data and descriptions ascribed to products listed herein are those claimed by the manufacturers and distributors, and listings are not to be construed as endorsements by POPULAR PHOTOGRAPHY. For further information write to address given in trade note.

CAMERAS

SIGNET 40 is a new 35-mm camera introduced by Eastman Kodak Co., Rochester 4, N. Y. It is equipped with a 46-mm Kodak Ektanon *f*/3.5 lens; shutter speeds from ½ to 1/400 sec; superimposed coupled rangefinder; M-F-X synchronization; hinged snap-lock back; exposure counter; and an exposure guide for three films and three light conditions. All settings are visible from the camera top and there is a universal setting for Kodak color films. Price incl. flashholder and two reflectors (3- and 4-in.), is $65.

KARGL JR. is a copying camera using 9½-in. roll film in an automatic metering roll-film magazine. Shutter speeds are from one to 1/400 sec plus T & B. The lens is an 8¼-in. Goerz Artar *f*/9. A slide is provided so that magazine may be removed to darkroom although only a few exposures have been made. An 8x10 sheet film adapter is an optional accessory. Price of the Kargl Jr. is $1,750; adapter, $75. Additional information from Kargl Co., Inc., P.O. Box 6563, San Antonio 9, Texas.

LENSES

KINOPAIR 1.4 sets consist of matching 1½-in. telephoto and 7.5 wide-angle *f*/1.4 lenses for 8-mm movie cameras. Both are in focusing mounts, have depth-of-field scales, click stops, and filter holders. Price is $104.59, in standard D mount as well as B&H mounts. Distributor is Photographic Imp. and Dist. Corp., 135 Broadway, New York.

AN 80-MM SCHNEIDER XENON *f*/2 lens for Alpa cameras is announced by Karl Heitz, Inc., 480 Lexington Ave., New York 17. It has a greater-than-normal magnification (60% larger image size than obtained with normal 50-mm lens) makes it suitable for portraits and close-ups without distortion. It is equipped with click stops to *f*/16, depth-of-field scale, filter holder, and focuses down to three feet. Price is $179; leather case and carrying strap, $8.85.

QUINON f/1.5 is a six-element lens designed for use on all 16-mm movie cameras. Click-stop diaphragm has 10 settings to *f*/22; focusing (in meters and feet) is from Inf. to 1½ ft; filter holder accepts Series 5 filters; and depth-of-field scale is engraved on the satin chrome finish. Price is $79.50 and more details can be had from Steinheil, 765 Bronx River Rd., Bronxville 8, N. Y.

ELGEET OPTICAL CO., 834 Smith St., Rochester, N. Y., introduces two new lenses for 8-mm D-mount cameras. A 9-mm *f*/1.9 wide-angle lens covering twice the area of the normal lens is equipped with an automatic depth-of-field scale Visi-window and has click stops to *f*/22. Model no. is WFF919. The other lens, a 38-mm *f*/1.9 telephoto provides 3x magnification, has a depth-of-field scale, and click stops to *f*/16. Model no. is TFF3919. Either lens is priced at $34.25, including front and rear lens caps and Fed. tax.

ZUNOW OPTICAL CORP., 521 Fifth Ave., New York 17, has added to its line of high speed lenses the Zunow 35-mm wide-angle and Zunow 100-mm telephoto *f*/1.7 lenses. They are designed for use on Canon, Contax, Leica, and Nikon cameras.

FILTERS

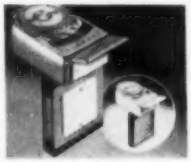
VISTADOMES found on many railroads often alter the color balance of films when shooting through the plastic dome. To correct this condition, Tiffen Marketing Co., Roslyn Heights, L. I., N. Y., offers the Photar Vista Filter #CC30R in all sizes for all cameras. Prices are the same as for Photar filters.

ROTOSCREEN, a Tiffen Polaroid filter in a rotating assembly, permits different degrees of polarization of the photographic image. It eliminates unwanted reflections on water, glass, etc., and accentuates clouds with color film without altering other colors in photograph. With two filters, fades and dissolves are possible with movie cameras. Currently available in Series 5, 6, and 7, a complete unit (Rotoscreen, filter, and viewer which allows viewing through the extension finder without removing the Rotoscreen) is priced at $13.95. Parts may be purchased separately. Booklet is available from Tiffen Marketing Co., 71 Jane St., Roslyn Heights, L. I., N. Y.

FILTER CASE or pouch supplied with Enteco filters are now made of a specially treated material so that that pouch acts as cleaner for filter or lens. Announcement comes from Enteco Ind., Inc., 610 Kosciusko St., Brooklyn 21, N. Y.

EXPOSURE METERS

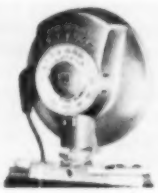
SEKONIC L-8 exposure meter measures both incident and reflected light; has *f*-stop calibrations from 1.4 to 22; shutter speed range of from four to 1/1000 sec; and accepts an auxiliary light cell for low-light-level readings. Meter, case, and neckstrap are priced at $8.45; auxiliary cell and case, $3.50, and combination, $11.95. Distributor is Kanematsu New York, Inc., 150 Broadway, New York 38.



FLASH

ZEPHYR 246 is a sidelight designed for use with the Zephyr 260 electronic-flash unit. Weight is 10 oz, diameter is 5¼ in., and it mounts on any tripod or standard clamp. Price, incl. 15-ft cable, 20-ft trigger cable, and standard mounting thread, is $37.50. Manufacturer is Dormitzer Elec. & Mfg. Co., 5 Hadley St., Cambridge 40, Mass.

FOTO-MITE is a compact B-C flash unit introduced by Heiland, div. of Minneapolis-Honeywell, 5200 E. Evans Ave., Denver 22, Colo. It features a large exposure dial, test light and button, bulb ejector, locking shoe-mounting clip, extension outlet, and a special M-2 bulb adaptor that stays in place when bulb is ejected. Both M-2 and bayonet-based flashbulbs may be used. Price, less battery, is $9.95. The Foto-Mite Universal, which has in addition a Push-Button handle and Universal bracket, is $11.95.



STROBONAR electronic flash units (four new models) are announced by Heiland, div. of Minneapolis-Honeywell, 5200 E. Evans Ave., Denver 22, Colo. Two features are characteristic of all four units. One is that each uses the same 4-in.-diameter miniature Heiland reflector and lamp head as on the Strobonar Seven and the other feature is ease of operation, with quick interchangeability for on- and off-camera use. Models 61A ($55.95) and 62A ($59.95), above, have a

Photo courtesy Liverpool Post

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". . . an extremely sharp six-element 48-mm Hexanon f:2 lens which rivals the performance of lenses costing considerably more than the Konica itself"

". . . this new model is a camera to entice all those who haven't the budget for the more expensive interchangeable lens-types; who haven't need for lens interchangeability; who want a quality camera to back up their present equipment for color slide shooting . . . the Konica fulfills all these desires."

"Rapid-fire finger lever advances the film and sets the shutter in two quick strokes"

"Combined range and viewfinder system which is the equal of some found in cameras costing three times as much"

"...nine-speed between-the-lens shutter with speeds from 1 second to to 1/500 second and MFX synchronization . . ."

". . . withstands comparison with any other camera produced today. Inside and out, they've succeeded magnificently."

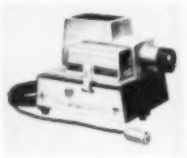
You'll agree—see Konica III at your dealer, or write for complete Editors' Report:

KONICA CAMERA CO., 76 West Chelten Ave., Philadelphia 44, Pa.

Canada: McQueen Sales Co., 1648 West 4th Ave., Vancouver 9, B. C. Venezuela: Seigro Yazowa, Apartado 3179, Caracas

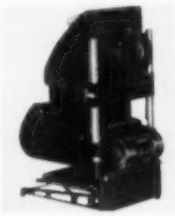
guide number of 28 for Daylight Kodachrome and operate from flashlight batteries or built-in a-c. An improved model of the Strobonar Seven for advanced amateurs and professionals operates on a 510-volt battery giving up to 1600 flashes, recycles in 3-5 sec, has ready-light, and is priced at $71.90, incl. battery; with D-Pak, $69.50. The fourth model, 71A, has a guide number of 70 for Ektachrome or Anscochrome, flash duration of 1/1000 sec, recycles in 5-7 sec, has ready-light, and is priced at $99.50, incl. 510-volt battery. Descriptive literature available.

PROJECTING & VIEWING EQUIPMENT



GRAFLEX, INC., 154 Clarissa St., Rochester 4, N. Y., introduces its entry into the 35-mm slide projector field with the Constellation, a remote-controlled unit equipped with a 4-in. f/3.3 lens, a 500-watt lamp, and built-in automatic slide changer. Price is $89.75. A manually operated model having an automatic slide magazine which, with one press of the changer bar, inserts one slide, retracts the previous one, and advances the next, is offered at $67.75.

OPTA-VUE EDITOR OUTFIT is a versatile 14-piece outfit used for viewing 35-mm slides, inspecting 35-mm negatives and film strips, or editing 8- and 16-mm movies. A 66-mm f/1.3 lens supplies 5x magnification. Price of $2.95 includes editor, 8- and 16-mm film masks, four color filters, batteries, and lamp. More information from dealers or Optics Mfg. Corp., Amber & Willard Sts., Philadelphia 34.



TRANSPAQUE, a triple purpose projector, uses a single projection head for opaque, transparency, and table projection. It takes a full selection of lenses in focal lengths from 4 to 40 in. The unit may be purchased for any of the three uses mentioned above, and other components may be added as the need arises. Since the unit is fitted to individual needs, the price varies. Manufacturer is Projection Optics Co., 330 Lyell St., Rochester, N. Y.

MISCELLANEOUS

CIRCULAR LEVEL DIAL, when attached to the top of a camera, indicates when the camera is absolutely level with the horizon. Finished in chrome, the price is $1.70, from Edmund Scientific Corp., Barrington 16, N. J.

BASE-TAPE is a reusable tape with adhesive on both sides. It can be used to mount prints in albums or upon walls, eliminating mounts, frames, and hooks. Price, per 100-ft roll dispenser, is 99 cents. Manufacturer is Base Tape Prods., Inc., 77 Pearl St., Brookline, Mass.

KENT BLOWER-BRUSH for cleaning lenses and film gate has a one-way valve which assures that dust and lint will be taken away by the brush rather than being sucked into the bulb. Distributed by Arel Inc., 4916 Shaw Ave., St. Louis 10, Mo., the price is $1.25.

ABC CUT OUT letters for movie titles are introduced by Free Offers Service, Box 102, Blythebourne St., Brooklyn 19, N. Y. Three sets (paper characters with gummed backs) are available in red and blue, 2-in. high (125 pieces), 3-in. high (90 pieces), and 4-in. high (65 pieces). Price, 60 cents per set, three sets for $1.50. Same sets in plastic letters, $1.25 per set, three for $3.50.

MINIFILM CAMERA CORP. announces the opening of a branch store at 1 W. 45th St., New York 36.—

How to Discover Photography Talent

by RALPH MILLER

Well-Known Camera Editor of the

New York World-Telegram and The Sun

tells you how to uncover YOUR Hidden Talent in his interview with Ralph Samuels, Dean of the New York Institute of Photography.

It is almost impossible to give a brief reply to a young man who writes that he has been pondering for months whether he should become an industrial photographer, a portrait photographer or a fashion photographer. One thing I can tell him, however, is that photography is no place for anyone who procastinates too long. You lose too many good pictures that way.

This young reader, whom I shall call Mr. X. will soon learn there is as much difference between the three types of photography he mentions as there is between an minnow, a striped bass and a whale. They may all live in the sea but they are certainly not much alike. An industrial photographer must be a jack-of-all-trades, a portrait photographer must like people and possess many of the qualities of a sculptor, a cheesecake lensman must have a flair for design and the patience of a saint.

It occurred to me that the dean of New York Institute of Photography, Ralph Samuels, might have some good advice for Mr. X. So I dropped around to show Mr. Samuels the letter and then listened awhile. It seems Mr. X's plight is not unusual; the institute receives a stack of such letters from all parts of the world.

According to Mr. Samuels there are several reasons why young men and women are sometimes unable to determine immediately which branch of photography they would like. One important reason is hidden talents. People sometimes do not know their capabilities in photography until, while studying and working with a camera, those latent talents are discovered.

There is one MUST, though, with which Mr. Samuels will not compromise. He is firm in his conviction that, to be truly successful in photography, you must love it. This applies regardless of whether you want to get into commercial, advertising, news, industrial, theatrical, fashion, portraiture or TV photography. It applies to both black-and-white and color. It applies to the photographer who wants to travel and to the one who wants to "stay put."

Mr. Samuels took me to task slightly, on that comment about procrastination. He thinks it is never too late to get into photography, and cites many examples of over-40 beginners who became successful in this field. He is also a firm believer in the vast opportunities for women in the photographic profession, and proved his point by citing such examples as Toni VanHorn, Bernice Abbott, Ruth Nichols, Constance Bannister and Margaret Bourke-White.

CHEESECAKE

Ralph Samuels, Dean of the New York Institute of Photography

Portraiture—Advertising—Calendars—Cheesecake—Industrial—Commercial—these are just a few among dozens of ways NYI teaches you to make money with your camera. And, as Mr. Miller says above: **they're all different as whales and minnows.** But, whatever your preference, don't let "trial and error" hold you back when NYI training can turn your photographic hobby into a paying proposition.

COMMERCIAL

Through our world-famous system of training, and under the guidance of experienced instructors, you learn both rapidly and correctly. You are then free to choose the branch of photography that appeals to you most and make it your specialty. Like hundreds of our other students, you may well find yourself helping to pay for the modest cost of tuition and buy new equipment—all out of your student earnings.

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It's never too late—according to Mr. Samuels who tells of many successes in all age groups. Don't put it off till tomorrow...when you can start building that successful future right now—TODAY!

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CANDID SHOTS by the Editors

Next Month—C-Day

The thousands of you who sent tens of thousands of photographs for this year's International Picture Contest a few months ago will shortly be reading the news you've waited for. The December issue, as always, will be the Contest Issue, with a fat portfolio of winning color and black-and-white pictures and a complete list of the 280 prize-winners. We've already previewed some of the photographs you'll be looking at next month, and we can promise a visually exciting portfolio. To put it neatly, the Contest Issue is a winner. And maybe you are too!

Our Electronic Interview

Our interview with Gene Smith on page 48 is much more than a record of a world-famous photographer's views on lighting problems. It is a document that preserves the unique flavor and quality of Gene's vision; it is filled with vivid phrases and specific incidents that extend the meaning of his photographs as well as the nature of his personality. If some of the sentences seem obscure or in need of further clarification, Gene's observation is, "Well, that's the way I express myself." He insists on his right to *say* what he feels just as he *photographs* what he feels. Despite any editorial misgivings, we have restrained our blue pencils and let Gene's text run, as the typesetters say, "right out the window." English is, after all, an amazingly flexible language, and where English leaves off there is still the power and passion of a serious man's convictions.

Wide Eye on 9 Studios

Durniak & Panon

Sometimes the highly specialized equipment turned out for photographers seems like so much gadgetry, useful chiefly for amusement and diversion. Of course working professionals know better, and familiarize themselves with all the odd and offbeat cameras, lenses, and accessories, knowing they may come in handy next week or next year. A case in point: In May 1955 we reported on a new Japanese camera called the Panon, which could cover a 140-degree field of view without the distortion of an extreme wide angle lens. More than a year later, as we began planning a feature for this Lighting Issue, *Inside 9 Studios* (pages 74-77), we remembered the Panon and knew instantly that it was the right tool for the job. How else could we show you so much about so many photographers' workrooms and the kinds of lighting they employ, using only one picture for each? We detailed Picture Editor John Durniak, a trained photo-reporter, to take the remarkable Panon with him on his studio tour, and he found his hosts fascinated by it. Occasionally John had to exercise some ingenuity to outwit the device. Its lens flops from side to side to make the exposure, and in close quarters he sometimes had to duck fast after releasing the shutter, to avoid getting in the picture.

The ABC's of ABC

When POP PHOTO editor Bruce Downes visited Japan last year, one of the things he tried to learn was the circulation of Japanese photographic magazines. But the figures were a well-kept secret. There were plenty of claims by the magazines, plenty of guesses by people in the industry, but no verifiable figures. Well, in the days before 1914, it was much the same in the U.S. But about that time publishers and advertisers began to realize that it would be a good thing for everybody if there *were* some verifiable figures. And the Audit Bureau of Circulations was born. It is a cooperative, nonprofit association of buyers and sellers of advertising, set up to define, edit, and report magazine circulations. POPULAR PHOTOGRAPHY is proud to reproduce the ABC symbol here, in recognition of ABC Month. It places a seal of authenticity on the fact that we're by far the biggest magazine serving the interests of the photographic public, with an average monthly circulation of more than 400,000 for the first audited six months of this year. That's equal to the combined circulation of our two competitors. For us, ABC symbolizes success. It symbolizes the integrity of our circulation, which means the quality and integrity of the editorial service we give our readers.

Technicolor Buys Pavelle

In the backwash of the Justice Department's decree ending color film processing by Eastman Kodak Co., there have been several attempts at systematizing a procedure that threatened chaos. One of the most promising was the recently announced purchase by Technicolor Corporation of Pavelle Color, Inc. This union of a big name in Hollywood with a big name in amateur color processing indicates that convenience will soon return to color photography, without the bugaboo of monopoly. Pavelle-Technicolor is now handling 35-mm Kodachrome, Anscochrome, and Ektachrome, and will soon be ready to process 8-mm and 16-mm movie Kodachrome. The plan is simple: when you buy the film, you buy a mailing bag, and from there on things are much the same as they used to be.

New Magazine: PEN PALS

Making friends by mail is an old and honorable practice, full of the fascination of the unknown and the thrill of discovery. It has led to business partnerships, matrimony, and a host of other interesting arrangements. Camera hobbyists, for example, love to exchange technical chit-chat, personal history, and pictures. Now, for all would-be pen pals, there comes a new Ziff-Davis magazine—PEN PALS. It will appear bi-monthly, and the first issue, on the stands October 11, will contain the names and addresses of 1,500 people in all parts of the world, with every conceivable hobby and field of interest represented, all eager to correspond with others like themselves. There's a special section devoted to camera fans in search of correspondents interested in photography. You can be one of them. Pick up a copy of PEN PALS and see for yourself.

Great Days at Hamilton High

You will probably remember that six boys from a single school walked off with awards in last year's High School Photo Contest—and that one of them got the top prize of $1,000. A lot has happened in the wake of the contest, and we're proud of it all. The school, of course, was Hamilton High in Los Angeles. We have a report from Mrs. Lois Vinette, who is instructor of photography and sponsor of the school's Camera Guild, telling us that she, Hamilton's principal, and top winner Marvin Silver were invited to appear before a combined meeting of the Los Angeles Board of Education and the superintendents who determine the city's educational policy. Mrs. Vinette says, "I am sure that the recognition that such competitions as yours brings to high-school photography has an influence on the thinking of educators in general." We certainly hope it does. Our picture, by the way, shows Marvin Silver with fourth prize winner Bob Brown in the foreground, and Larry Segal, Don Lauritzen, Bruce Tune, and Alex Balian, who all won honorable mention.

Silver, Segal, Lauritzen, Brown, Tune, Balian

As for this year's High-School Photo Contest, you'll find an announcement and entry blank on page 144 of this issue.—▶

—by H. Armstrong Roberts, using Press 25 by Sylvania as bounce flash

Grab the winners

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The right light "made" the picture of the little girl above
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W. EUGENE SMITH TALKS ABOUT LIGHTING

Fran Ehrlich

NOTE: The following text is based on a transcribed interview with one of America's great photojournalists. It is presented exactly as Mr. Smith revised and approved it with no editorial intervention by this magazine. Smith has photographed some of the most memorable picture stories of our time for Life *and other publications. He is currently completing a major project on Pittsburgh while working with the Magnum group of photographers.*

Interview recorded by Arthur Goldsmith

Q.—*What is your attitude toward available-light photography?*

A.—My attitude? It is quite friendly. However, let me give my definition of available light. This, to me, is simply any light which is available in any form—lighting that I can photographically take hold of and utilize, from an irregular nearly none at all, to a lighted match, to the headlights of a car, to flares, to anything. My attitude, first, is that the final picture must rise above the adequacies or inadequacies of light, overcoming and using light to state what its purpose is and what its characterization was intended to be. Secondly, I've never found I've been able to take pictures without light, no matter what is said in brag of the fast lenses and film speeds of today—excuse me, of tonight—and therefore, when I am in a situation where I cannot see my subject it is my simple-minded attitude that I must add light of some kind. In the midwife story, for example, there certainly was no light in those dark little cabins and I had to add light, so I used speedlight . . . I used oil lanterns, I used candles. Lighting, like any other singular of technique, is not *the* problem. The beginning and final problem is whether I eventually solve what I set out to do, with a sufficiency of command and depth not to demean my intent.

Q.—*The argument advanced by the available-light purists usually is that any introduction of an artificial light source tends to destroy the mood or the appearance of the actual scene. How would you answer that?*

A.—Silly little children talking in their narrow dark! I've heard them say, many times, that available light is the one, the only true approach to photography. These purists are soiled from their insufficiencies—that righteous blindness afflicting nearly all holders of the singular

Light from oil lamp plus speedlight bounced off dark floor was used by Smith to photograph Dr. Albert Schweitzer.

Courtesy *Life*, © Time Inc.

truth—seeing surface or less, yet unqualifying in their condemnations. What should we do? One day you go into a room to make a portrait of a man, and there's a 25-watt bulb hanging over his desk, so you use the available light. It's a small cell of a room, a dark room, and this one bulb actually is the only source of light. It's rather far over the subject's head, so the exposure has to be fairly long, the film very fast, and the souping-up considerable. Of course you end up with a picture that is probably dark and white blockups, perhaps moody, and certainly grainy—a picture which may be completely contrary to this man's character and what you're trying to say about him—*if* you have something to say about him. Anyway, the next day, the same photographer goes back and finds they've just put up a large bank of fluorescent lights where that doggone little old bitty bulb had been. This time you can shoot at 1/50 at f/8, have modulation, and no need for basketball grain. Who reformed the man, was it the light, or his neighbor's wife? Now, by light alone, which is the honest picture of the man?

Q.—*Same man, same situation?*

A.—But entirely different in visual effect.

Q.—*Tell me, do you ever study the light as it exists before adding flash or flood and then try to duplicate the effect of the original source?*

A.—Sometimes, yes. In one picture of mine that I set up for color I used sixteen flashbulbs. You ran the picture (POPULAR PHOTOGRAPHY, Nov. 1953). Well, I calculated the effect of each bulb, and the final result looked like available light, with a needed depth of focus. But certainly in the midwife story I didn't try to duplicate the existing light. What with the dark skins and the white sheets and the oil lamp sitting behind them I could not possibly have seen the necessary details—the expressions and the emotions and the relationships I was trying to relate.

Q.—*Sometimes, then, you are forced to create your lighting entirely rather than to simulate what already exists?*

A.—Certainly. Again, in the case of the midwife essay, I would have been considerably the liar and untrue to my essay-subject, and to my moral responsibilities, if I had passed up those pictures requiring the aid of additional lighting, and which often was contradictory to the lighting as found. And if—during and after the event, say of the birth of the child—if that birth was less a fact, less of truth, any different for my having added speedlight—I just don't believe it!

Q.—*How about the psychological difficulty of introducing artificial light—don't you find this sometimes disturbs the atmosphere you've been trying not to disturb?*

A.—Yes, this is a problem. It's a problem that is just one more phase of the difficulties a man always has when he intrudes himself with a camera. He has to be able to overcome these difficulties, to revert his subject from this added stimulation back into the flow of normal circumstances before taking pictures. I prefer, if possible, not to use flash because this is a continual tap-tap-tapping like the drip dropping of water. On the other hand, if you put a bounce floodlight into a room, after a few minutes it becomes a normal part of the environment. Actually, I've had people ask me to leave it on after the shooting was over because the return to normal light level was now an intrusion, and they wanted to finish what they were doing with the (*Continued on page* 103)

For the difficult shooting situation:

BUILD THE PICTURE WITH LIGHT

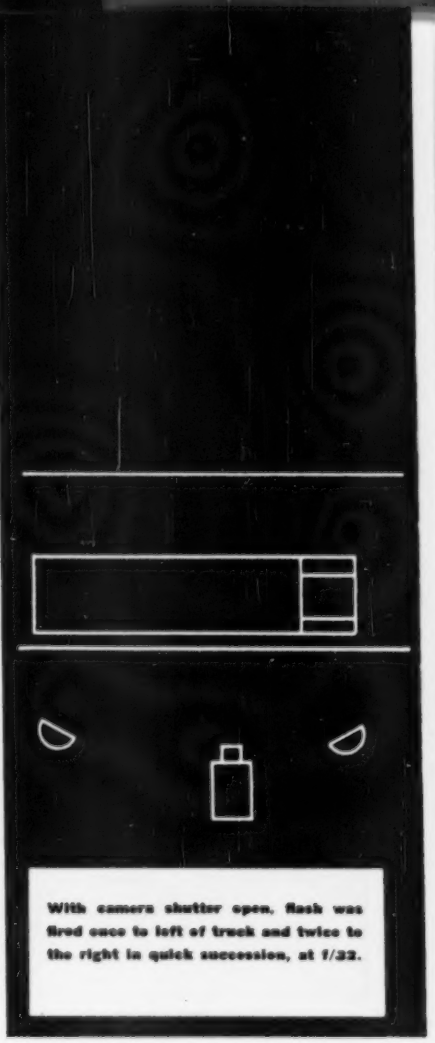
By RUS ARNOLD

ANYBODY who knows how to operate a camera can come up with a good picture when the situation is right. Given a beautiful subject and ideal lighting, how can you miss?

What happens when the subject is all wrong? Given a not-very exciting situation or lighting that's inadequate or dreary, what do you do? The amateur, of course, wisely tightens the lens cap on his camera and keeps on walking. The professional, however, does not always enjoy that pleasant privilege. He has to stay and come up with a Monumental Masterpiece, or his name's surely Mud.

How does the professional handle those unphotogenic situations? Well, there are as many different approaches as there are photographers. Most of the time, I try to solve this kind of problem with an approach I've adapted for myself which I call "synthetic" or "synthesized" lighting. That is, outdoor or indoor lighting which is built up by adding artificial light to available light.

Night skylines are a typical problem. If you photograph them after all the lights have been switched on, the sky

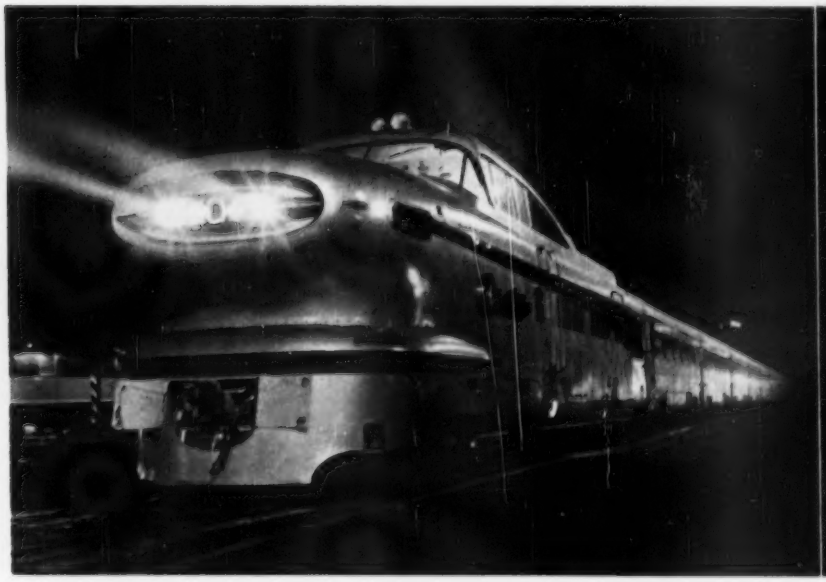


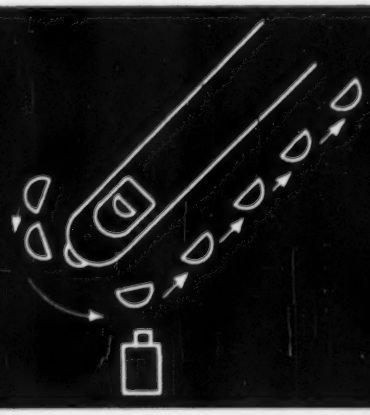
With camera shutter open, flash was fired once to left of truck and twice to the right in quick succession, at f/32.

Without destroying the reality of the scene you can transform its limitations

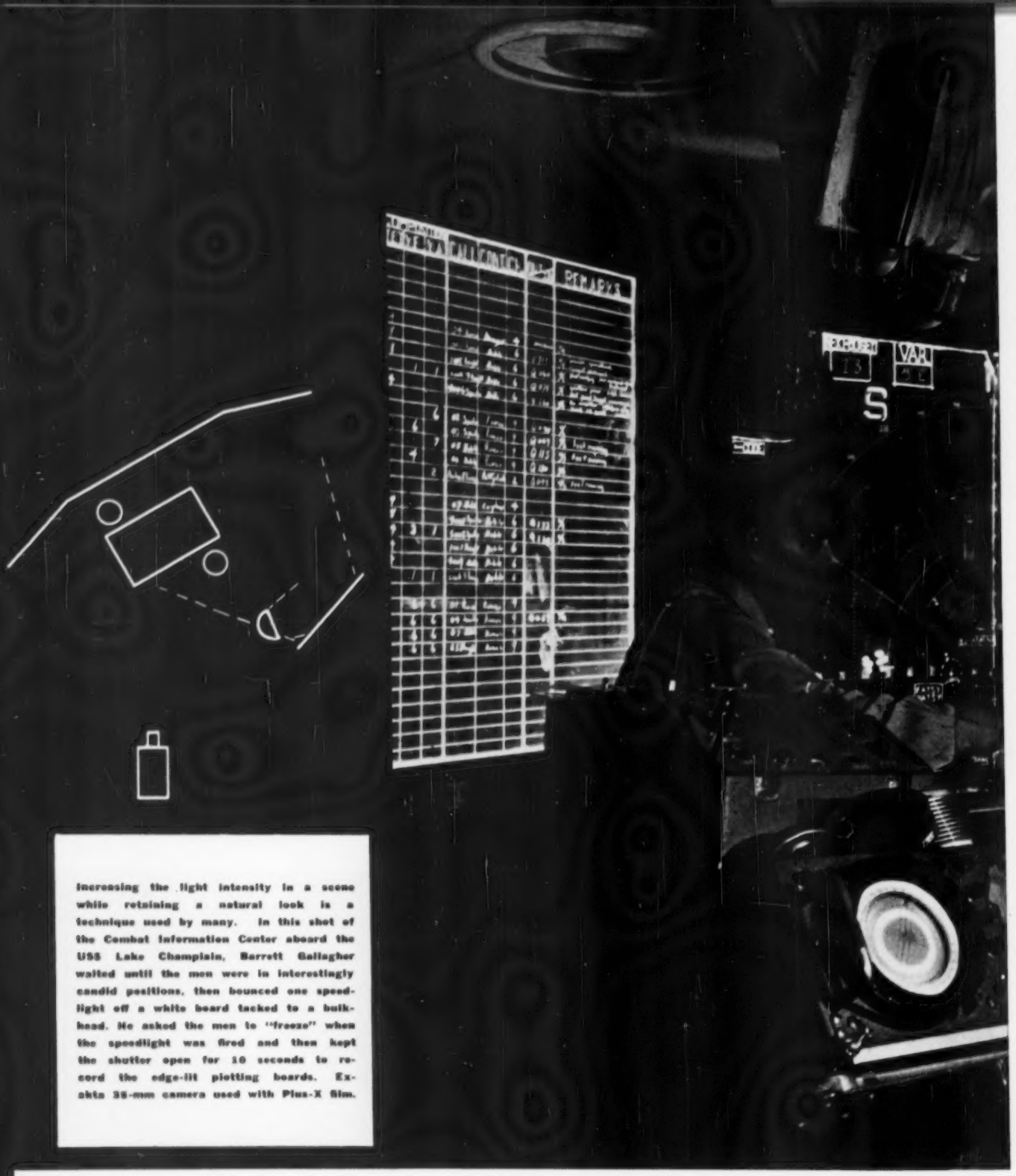
A single hand flashlight was used to "paint" foreground objects while camera shutter remained open; passing train left light streaks.

into sparkling, dramatic effects by using a "synthetic" lighting technique





About 22 flashbulbs were used while "painting" General Motors' Aerotrain with light. One flash was fired in engineer's cab itself.



Increasing the light intensity in a scene while retaining a natural look is a technique used by many. In this shot of the Combat Information Center aboard the USS Lake Champlain, Barrett Gallagher waited until the men were in interestingly candid positions, then bounced one speedlight off a white board tacked to a bulkhead. He asked the men to "freeze" when the speedlight was fired and then kept the shutter open for 10 seconds to record the edge-lit plotting boards. Exakta 35-mm camera used with Plus-X film.

will be too dark to outline the buildings. One way to handle this is to set the camera on a tripod or other steady support and make a brief exposure before dark to get some detail of buildings against sky. Expose at half of what the meter calls for. Then leave the camera undisturbed until after dark, when you can make a suitably long exposure for the lights. This is particularly effective in color pictures, especially of chemical plants or refineries at sunset. Such sub-

jects are almost invariably shot with two separate exposures; one for the sunset and the building's outline, another taken much later and of longer duration, for the lights themselves.

But suppose you want, in addition to the effect just described, foreground detail as well? Once I needed just such a picture. It was to be of a telephone truck against the night skyline to illustrate a story called "They Work While You Sleep." I knew I would need the right time of the right kind of day but I also knew I would have to create my own foreground illumination. Police permission was obtained in advance and when the right kind of day came around we proceeded (*Continued on page* 142)

How to develop

AN EYE FOR

Good black-and-white work requires proper ratio of

1 *Lighting ratio 1:1*

2 *Lighting ratio 2:1*

ONE of the highest compliments that can be paid a photographer is to say that he has an eye for lighting, a faculty for getting the results he wants by knowing how his film will handle lighting ratios. The limited brightness range of color film is well known and most photographers are able to work within this range, but not too many are familiar with the way a black-and-white emulsion will handle various lighting contrasts.

Ordinarily, most of us base our first experiments with color film upon previous experience with black-and-white. How do black-and-white films differ from color films in their ability to handle various brightness ranges? What effect does background brightness have on the rest of the picture? When making black-and-white pictures, we obviously don't worry about reproducing the color of the background, but its tone should be carefully controlled.

In black-and-white photography, the purpose of controlling the light is to give an illusion of roundness in the subject and to reproduce flesh tones in varying shades of gray so that the result is a pleasant and clean-looking representation of the model.

We can see by studying these pictures what effect various lighting ratios have on the face of a portrait subject. In picture 1 you see that the term "flat lighting" for low ratios, 1:1 in this example, is well chosen. There is very little illusion of depth here, only the abrupt breakaway of tones on the sides of the nose and the sides of the face. Picture 2 is only slightly better. The shadow cast from the main- (*Continued on page* 98)

LIGHTING

By DEFOREST E. INKLEY

mainlight to fill-in

Pictures 1 to 4 show possible lighting ratios for portraiture. Flatlighting, Fig. 1, gives one-dimensional effect. Ratio of 8:1, Fig. 4, gives dramatic effect but taxes ability of film to show details in both highlights and shadows.

3 *Lighting ratio 4:1*

4 *Lighting ratio 8:1*

Background lighting affects apparent contrast of subject

5

6

7

Subject lighting ratio is the same in all three photos, approximately 3:1, but background illumination varies from half the subject lighting in Fig. 5 to one twelfth the subject lighting in Fig. 6 and four times in Fig. 7.

For **SPORTS** *pictures—*

SPEEDLIGHT OR

Ralph Morse used 2 1000-watt speedlights bounced against ceiling, and remote-controlled Robot camera hidden in court.

Courtesy *Life*, © Time Inc.

SPEEDLIGHT BY RALPH MORSE, *staff photographer, Life*

Ralph Morse and Dick Meek are staff photographers on two of the country's top magazines. The nature of their work requires that they use whatever equipment is necessary to get unusual and exciting pictures. For the sake of argument POPULAR PHOTOGRAPHY *asked each to take a side in a controversy on lighting for sports photography. Although Morse supports electronic flash as the best light, he has many pictures to prove he is also an expert with available light. On the other hand, Dick Meek has shot as many assignments with speedlight as with available light.*

A SPEEDLIGHT is like a hammer or a saw—it's a tool. You use a tool because it is necessary for a job. Of course, like a good carpenter you must know when to use a tool. You don't go out and use a screw driver where a saw is called for.

A photographer specializing in sports work (and for that matter general news work also) must know when he should and when he shouldn't use speedlights. For instance, I was assigned the job of shooting fighter Hurricane Jackson. My pictures had to put across the point that Jackson had an unusual swing, one that looked like a car coming around a corner at full speed.

It would be almost impossible for me to try to show this swing without electronic flash. If I tried available light I probably would have caught a blurred arm, a blurred glove, and a blurred fighter. I shot with speedlights and got the picture.

While on the same assignment, I got into Jackson's dressing room and found him and his trainer sitting on a bench. The trainer was reading the Bible to Jackson. I shot this picture with available light. If I used flash, it would have made the situation completely unrealistic, and ruined my chances for taking a second and third or more pictures.

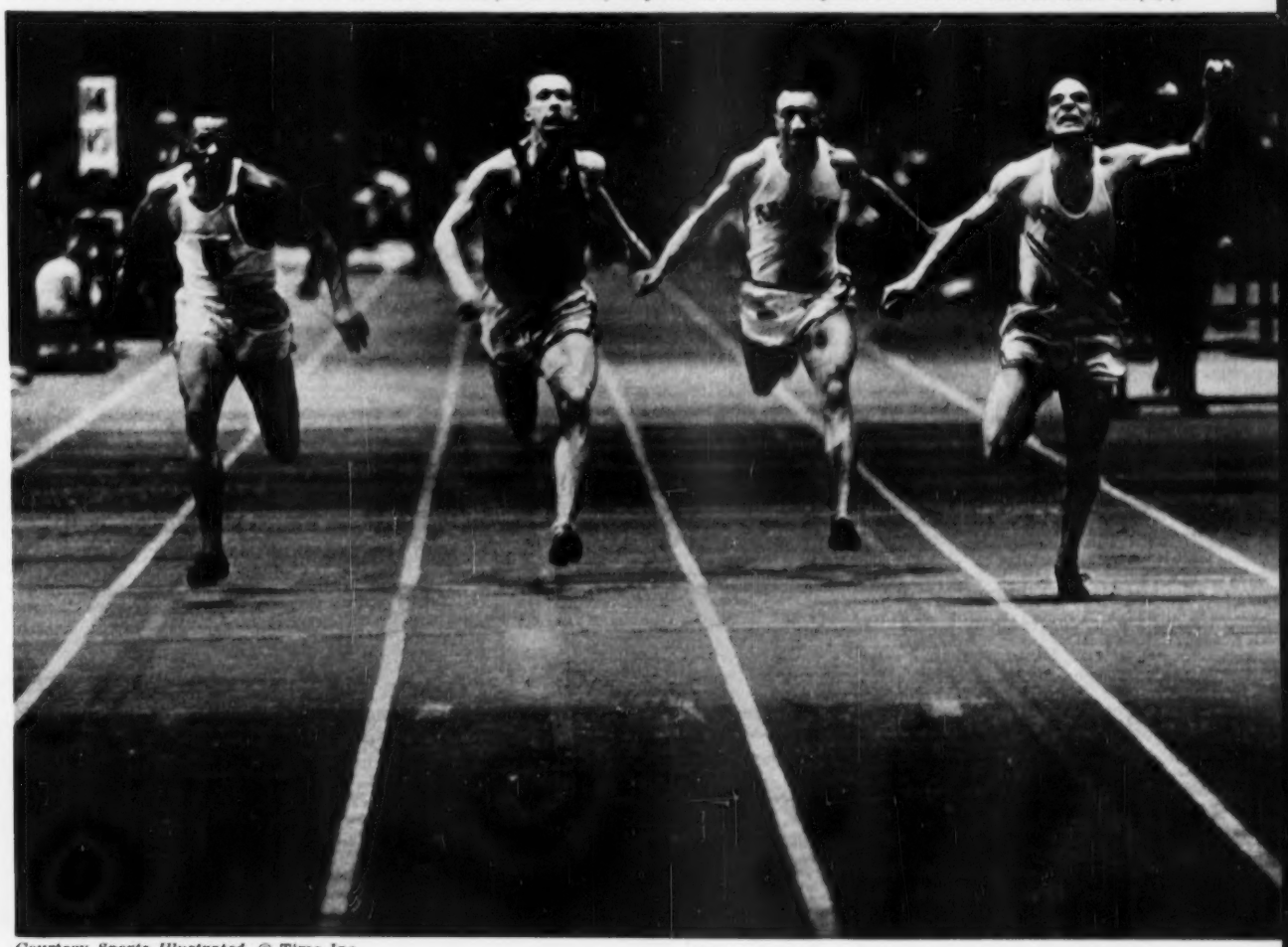
Offhand I can't think of an assignment I've had recently where I could use only speedlight for the entire assignment or available light alone.

Now that I've given my modified stand

(*Continued on page* 58)

AVAILABLE LIGHT?

Dick Meek focused his Leica with 85-mm lens on the finish line of a sprint in Madison Square Garden and shot at 1/500 sec, f/4.



Courtesy *Sports Illustrated*, © Time Inc.

Walter Daran

AVAILABLE LIGHT BY DICK MEEK, *staff photographer, Sports Illustrated*

I WOULD like to use available light for all my pictures, but some require artificial light, and my job is to get pictures for my editors. Sometimes I can fight the lack of enough available light and win, and at other times it's no use trying.

For me, there is nothing like working under available-light conditions. Under them I can preserve the mood of an event or a motion. Electronic flash, on the other hand, destroys reality. It floods an arena with a light that is not native to the place, a light that creates something different from what is actually there.

Available-light photography offers the sports photographer freedom. Speedlights restrict him. Using them you have to deal with wires, hundreds of pounds of condensers, and you have to wait between shots while units recharge.

In working with available light I can work almost secretly. Spectators and athletes are sometimes surprised to see some of the pictures I've taken appear in *Sports Illustrated*, because they never noticed I was shooting. However, the electronic flash photographer with all his big units hooked up can't lose himself unless the excitement of an event becomes so great that the gun-shot-like sound and light from his flash tube are lost in the hum and hollering. Sometimes athletes will object to a flash being fired during an event. I have seen a speedlight photographer become the center of controversy during a sports

(*Continued on page 60*)

Photographs courtesy *Life* © Time Inc.

← *At ringside, Morse shot upward, using 4 1000-watt speedlights to stop boxer Hurricane Jackson. Camera was Contax with wide-angle lens.*

→ *Morse set up 2 6400-watt-sec lights near a turn on a midget racing car track. By backlighting he was able to dramatize the high-speed action.*

The first photographer to shoot big league baseball with electronic flash, Morse hid giant flash tubes in stadium lights for this picture.

Sports with speedlight by RALPH MORSE

on the use of electronic flash, let me try to give my case for it in sports photography.

Let's first consider electronic flash as cold equipment. Let's take it apart technically and see what it has to offer.

First, the speed of a flash varies with different units. It can give from 1/400 second to 1/30,000 second or more. The sports photographer must decide whether he wants to "freeze" action completely or use electronic flash just as a source of light like floodlight.

(In some cases, as in shooting color of an event which does not have fast action, you can use electronic flash to produce the great amount of light you need for good exposure. Here, the speed of the light is unimportant.)

Second, the size of the unit affects portability and intensity of light. Small portable units are powered by dry or wet cell batteries and give about the same amount of light as a No. 5 flashbulb. By adding condensers, the bigger units can give an unlimited amount of pure daylight-type light.

Third, using photoelectric cells and other electronic devices, radio controls, electronic flash becomes highly versatile and offers the photographer a great amount of freedom.

It is important to know the characteristics (*Continued on page* 110)

event many times. Believe it or not, it is easier to hide behind a small 35-mm Leica, than behind banks of electronic flash condensers at sporting events.

There are events, especially those I must shoot in color, that force me to use electronic flash, but I won't discuss these situations. I'll let Ralph Morse find his own examples to use against my argument that available light makes for more dramatic sports pictures.

Instead I would like to touch on some sports situations where speedlights spell almost immediate failure for any photographer.

Probably the best example is an assignment to shoot a chess match, although actions are extremely slow. The intensity of the players and audience is great. Electronic flash would destroy the feeling of the game.

Using a low angle, Meek made this shot during a game between UCLA and LaSalle with a Rolleiflex and Tri-X at 1/250 sec, f/3.5.

→

Race horse buyers didn't notice Meek and his Leica. He was able to get such candid shots. Rating Tri-X at ASA 650, he shot 1/100 sec, f4.5.

Sports with available light by DICK MEEK

Photographs courtesy *Sports Illustrated*, © Time Inc

Bowling, a difficult sport to shoot under available light, was a challenge for Meek. He used a Leica, 50-mm lens, and Tri-X, f/8 at 1/100 second.

Another sport that would be difficult to shoot with electronic flash is night football. Possibly a small area of a field could be lighted by giant units but you could not efficiently light the entire field. In this situation a fast film, fast lens, and the available light coming from the stadium's footlights would do the job best.

If you are set up with conventional speedlights at any sports event, it is impossible to get good sequences. The recharging time of the unit would keep you from shooting pictures less than several seconds apart. With a sequence camera and available light you could do the job.

Today, more than ever before, manufacturers of photographic equipment and supplies are working for the available-light photographer. They are producing fast films, fast lenses, and highspeed developer. (*Continued on page* 111)

ED LETTAU SHOOTS GLAMOR

A simple yet atmospheric shot of model Sandy Sands on an overcast day. Rolleiflex, 1/100 sec at f/5.6 on Verichrome Pan.

WITHOUT FLASH OR FLOOD

Flood-like lighting is actually diffused porchlight. Graflex, 1/10 sec at f/6.3.

ALTHOUGH he has photographed beautiful girls for only a relatively short time, Ed Lettau has quickly established himself as an original personality in the "glamor" field and his work is eagerly sought by editors. And yet, when Lettau goes out on location, he takes with him nothing but his model, a camera, and a roll of film. No flash, no floods, no filter!

Most photographers of "glamor" do, of course, use miscellaneous aids like fill-in flash, light stands, reflectors, and assorted props and assistants. Faced with the realization that slick lighting and technical wizardry would only put him in direct competition with the "masters" in this field, Lettau was determined to work out a style all his own. By choosing a direct, uncluttered approach Lettau has been able to concentrate completely on the important problems of mood and pose.

Outdoors on an overcast day (his favorite lighting), Lettau shoots wide open and throws the background out of focus as a means of separating it from the model. On a sunny day he often shoots the model from the shadow side and lets the background burn-out.

Indoors he likes to work in the model's home, where he can take advantage of the qualities of windowlight or ordinary roomlight. Since Lettau accepts glamor photography as quite frankly a matter of *pose* rather than of spontaneous action, he is not concerned with subject movement and can afford to shoot with a long exposure rather than with flash or flood.

Lettau usually exposes one stop more than his meter indicates and underdevelops to achieve open shadows and a mellow, rather "fashiony" quality, as he puts it. For the rest, he looks for "life, mood, and the element of surprise" in his pictures.—

← *Lettau used model Monica Davis' own room lamp for lighting this picture. Enough light spilled onto an adjoining wall to avoid overly contrasty negative. Exposure: 1/25 sec at f/4.*

→ *Light from two windows, one behind the model and one to the left, was used here. Lettau's characteristic out-of-focus, overexposed backgrounds help dramatize his subject matter.*

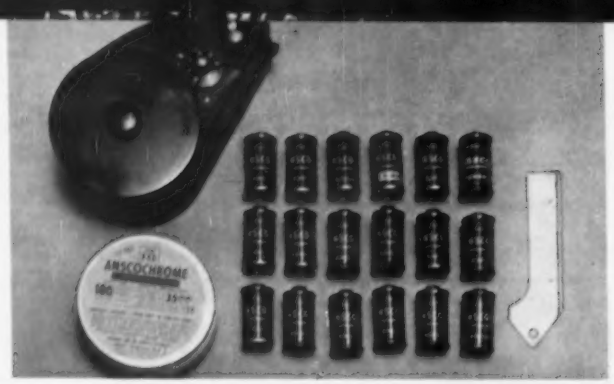
← *A combination of daylight and roomlight was used in this shot of actress Barbara Wilkins in her apartment. Lettau exposed for ½ sec at f/2.8 on Verichrome Pan, using a Rolleiflex.*

The light of a cloudy-bright day plus reflection and diffusion of light from nearby objects served to make this picture of model Beverly Anderson. Her pose gives the shot an amusing light-heartedness. Rolleiflex, 1/250 sec at f/4 on Verichrome Pan.

A good example of the way Lettau exposes for the shadow areas, letting the background burn-out. In this way he achieves a satisfying diffused light without the need for flash fill-in. Exposure: 1/250 second at f/8.

A well-lit face with halo lighting on the hair was achieved by exposing for the shadows, ignoring the background.

Lettau used the sand itself as a reflector to fill-in the normally harsh shadows of a sunny day. Rolleiflex, 1/250 sec at f/4, pan film.



Load your own: the new 3400 K Anscochrome comes only in 100-ft roll; with the aid of convenient daylight loader, each makes 18 to 20 cartridges of 36 exposures.

How to use the new

ANSCO TUNGSTEN FILM

By NORMAN ROTHSCHILD

Photographs by the author

TWO months ago this magazine announced the introduction of Anscochrome Tungsten 3400 K film for 35-mm cameras, in a story which hinted that the new material might find wide application in available-light photography, since it could well withstand pushing to an exposure index of 64. Now further tests of the remarkable new film not only confirm that suggestion, but indicate that even faster speed indexes may be used without appreciable loss of quality. And the tests also show how Anscochrome 3400 K reacts to a wide variety of available-light sources, as well as to flood and (with a filter) to flash. Some examples are reproduced on the opposite page.

The film is, of course, designed for use with standard floodlamps, like the No. 1, No. 2, No. 4, RSP 2, RFL 2, and 375-watt medium-beam reflector bulbs, all of which operate at 3400 K. This is perfect for portraiture, commercial work, still life, and all other applications where flood would be the natural choice. One of the charts at the bottom of this page gives some suggested exposures for standard two-lamp setups.

The other table reveals that, although this film is not recommended for flash, it can be used satisfactorily with an 81-C filter on the lens. Ansco, of course, makes a 3800 K film for use with clear flash.

Professionals are discovering—and amateurs will be quick to learn—that the real story about the new film is that it works so well under the tricky and variable light sources so often encountered in available-light procedure. The four examples on page 69, all made at the normal speed rating of 32 (ASA equivalent), show re- (*Continued on page* 99)

EXPOSURE TABLES FOR ANSCOCHROME 3400 K TUNGSTEN FILM

FLASH EXPOSURE TABLE WITH 81C FILTER ANSCOCHROME 35-MM TUNGSTEN TYPE FILM (3400 K)

Shutter Speed	#5 #25	#6	#2 #22	#11 #40	#6 #26
1/50	126	97	155	145	125
1/100	95	67	140	105	71

M-2 Powermite Guide is 86 up to 1/50th. This is the 7000 lumen bulb, not the 5000 lumen. SM/SF are not recommended.
No recommendation for the #31 or #2A since these are 4x5 focal plane bulbs.

PHOTOFLOOD EXPOSURE TABLE ANSCOCHROME 35-MM TUNGSTEN-TYPE FILM (3400 K)

Based on use of 375-watt (medium-beam reflector bulbs)

Main Light	4'	6'	8'	12'
Fill Light	6'	9'	12'	18'
1 sec exposure at	f/22	f/16	f/11	f/8

Cold fluorescent light, f/2 at 1/5 sec

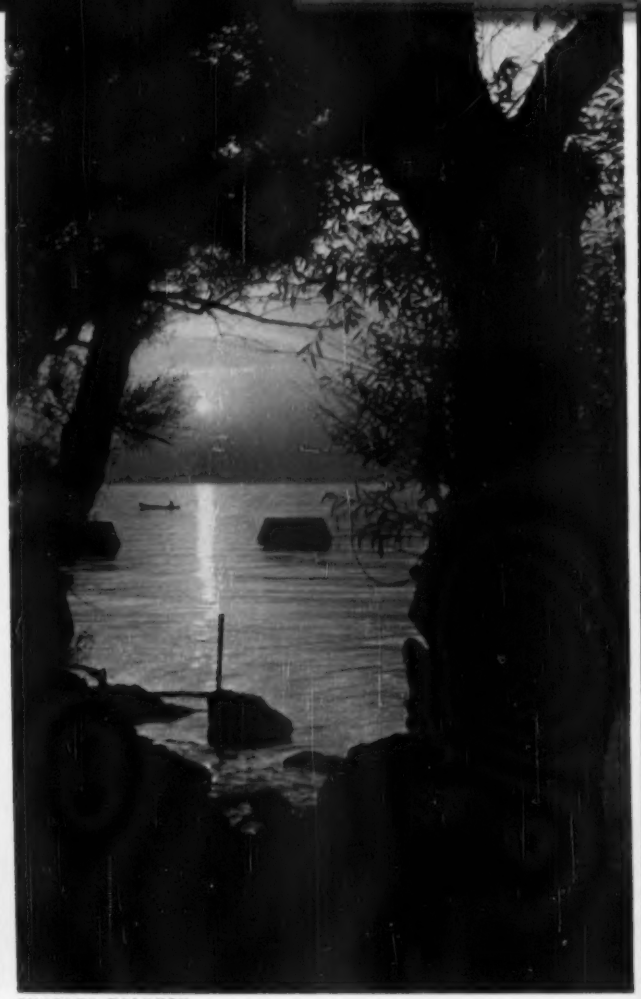
Here's how Ansco 3400 K Tungsten 35-mm film performs under varied lighting at an index of 32

Mixed fluorescent and tungsten, f/2 at 1/25 sec

Street-lamp illumination, f/1.1 at 1 sec

Warm fluorescent light, f/2 at 1/5 sec

DELPH LEE MICKELSON



CHARLES BALDECK

PICTURES FROM OUR READERS

EMERY J. WOODALL, JR.

Light is the theme of this issue, and our readers have provided us with four fine pictures in which light is either the whole subject or takes a dominant place. A great variety of kinds of light are represented: daylight, flash, sunset, street light. Sources of illumination, which are generally taken for granted or carefully relegated to a functional role, are here given the center of the stage. In two cases the sun itself is visible; in one it is the arrangement of lights that creates the picture; in another, flash and daylight are counterpointed in a novel fashion.

Delph Lee Mickelson, St. Louis Park, Minn. Sitting in his car and waiting for the traffic light to change, Mickelson realized that the light, together with a nearby street lamp, a lighted window, and the twilight sky, might make a fine color picture. He remembered a technique described by German photographer-lecturer Walter Benser for recording sky light and foreground light in one exposure, and followed it, leaning slightly toward underexposure. It's a satisfying shot of difficult material.

Leica IIIc, Ektachrome, 1/20 second, f/3.2

Emery J. Woodall, Jr., Denver, Colo. While serving in the armed forces at Thule in Greenland, Woodall got this picture of a bleak Arctic sunset using a camera he had recently bought in a post exchange. A four-day ground blizzard had just ended at the remote air base, but the wind was still blowing briskly as he stepped outside, and he had to brace the camera, then shoot quickly to protect it from blowing snow. Woodall, a geographer in civilian life, used a new high-speed color film, doubling its rating to 64.

Leica IIIf, Ektachrome, 1/30 second, f/8

Charles Baldeck, Rochester, N. Y. Teen-age amateur Baldeck made his beautiful sunset picture at Fish Creek Ponds in the Adirondacks, framing the sun, its reflection, and the objects in the water within an arch of trees. He took an exposure-meter reading from the water, and made several shots with different settings; this one was best. It was improved also because someone paddled a canoe into the composition just before he made the shot. Since he depended on the meter, he did not record exposure.

Kodak Pony, Kodachrome, no exposure data

Lola Beall Graham, Homer, Alaska. Using her daughter and son-in-law as models, Mrs. Graham went to a cave on Arch Rock Beach at Santa Cruz, Calif., to shoot this unusual dance photograph. She was trying to catch the figures framed against the cave entrance itself, but used up all her flashbulbs before she caught the leap from the right angle. However, this shot is perhaps even better, in its own way, than what she was trying to get. Mrs. Graham makes her home in Santa Cruz during the winter.

Rolleiflex, Ektachrome, blue flash, 1/250, f/8

Lola Beall Graham

BLUE FOR GLAMOR

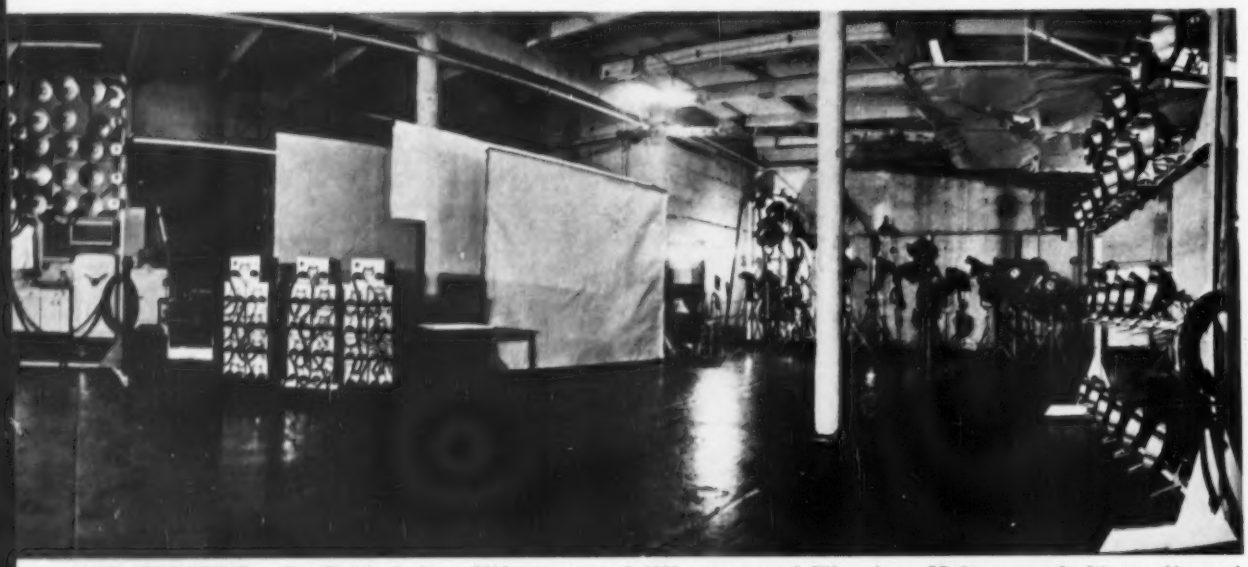
Experiments with "wrong" compensating filters lead a young pro into an expressive new dimension in color

THE people who make color films have very definite ideas about the way they should be used—and rightly so. They naturally presume the photographer will always aim to reproduce the hues of his subject as faithfully as he can. But there is always the exception, like Maynard Frank Wolfe who made the striking glamor shot on the opposite page. He is one of the younger generation of camera workers, often impatient with the traditional and the "accepted." Contemplating this lovely girl as she sat near a window, he saw her as a vision in blue. How to convey that feeling? His Leica M3 was loaded, as it very often is, with Anscochrome Type F. He finds the flash-balanced emulsion is easier to adapt to his favorite available-light situations than the daylight type. Here it would not be a question of adapting in the usual sense, but of bending the film's characteristics in the right direction. The experts say that if you must use Type F film in daylight, you should have an 85C filter on the lens. Wolfe calculated that adding an 82A would give a cooler rendition of all the colors, and that is the combination he used, rating the film at 25 and shooting at 1/50 second, f/2, with only the light from the window about four feet away. His delicious model, by the way, is Marlene Hafemann, a young lady from Dallas, who is quite obviously on her way to success as a photographer's glamor girl.—▶

Photograph by
MAYNARD FRANK WOLFE

INSIDE 9 STUDIOS

Panon photographs by John Durniak



LIFE MAGAZINE • Daylight: 2 skylights, 4 north windows. Skylight controlled with shades. Windows can be blocked out. **Electronic flash:** 32 800-watt-sec Ascor condensers; 5 giant lamps taking as many as 34 condensers each, 12 lamps taking 4 condensers each. **Tungsten light:** 2 5000-watt boom floods; 1 5000-watt spot; 2 2000-watt spots; 4 1000-watt spots; 6 750-watt spots; 4 500-watt spots; 6 1500-watt portable floods; 4 1500-watt floods; 1 bank of 25 500-watt floods which can be used direct or bounce; 1 bank of 25 500-watt Alligator Clamp lights which can be broken down into strips of lights. **Reflectors:** 4 movable white 9x12-ft walls; 4 drop ceilings. **Meters used:** Weston, Norwood, General Radio electronic-flash meter. **Special devices:** portable ceiling grid on which articles are hung for mobile-type pictures. **Backgrounds:** movable walls, paper rolls hoisted by pulleys. **Cameras:** (photographers bring own). On hand, 8x10 Deardorff and a variety of other cameras.

DR. ROMAN VISHNIAC • Daylight: has north window but does not use daylight. **Electronic flash:** specially built 100-watt-sec unit for use with microscope; 2 Mighty Light units. **Tungsten lights:** never uses them. "The intensity of the heat is prohibitive," says Dr. Roman Vishniac, "for my specialized work." For motion pictures uses Sylvania C-100 zirconium light unit. **Reflectors:** Bausch & Lomb parabolic mirrors ranging from 2-to-8 inches. **Meter used:** does not use any; calculates exposure by "visual observation." Keeps exposure charts and makes tests. **Special devices:** all setups require special devices. Range from time-lapse equipment to photoelectric devices which allow insects to photograph themselves. **Backgrounds:** none. **Cameras:** Hasselblad; 3 Leicas; 2 2¼x3¼ Graflexes; a Speed Graphic; 2 Rolleiflexes; 6 custom-built high-magnification cameras. **Amount of color work:** 100%. Dr. Vishniac shoots both stills and motion pictures in color.

HERE are nine of the top professional studios in the country. Come in and look around. The unique Panon camera which produces a picture with a 140-degree sweep is the magic carpet on this tour. You can see the work shops where photographers like Bert Stern, Arnold Newman, and *Life* magazine staffers make light behave like a circus horse. There are also the Grand Canyon-like quarters of Pagano, Inc., where you stand on the rim of a giant photographic valley. Harriet Arnold shows you how she converts a living room into a studio. Ozzie Sweet, Tosh Matsumoto, and Gerald Hochman find time to pause in their busy schedules and let you see their places. Soft-spoken Dr. Roman Vishniac welcomes you into his small studio where he photographs much smaller animals. Study them all for ideas you can use.

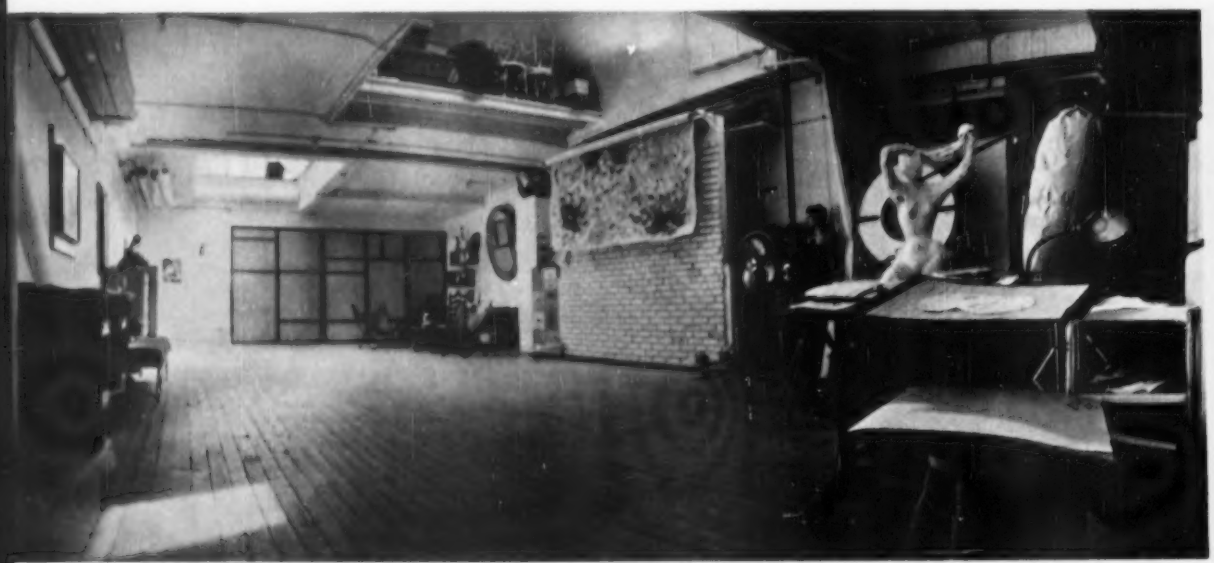
OZZIE SWEET • Daylight: 2 skylights, 8 windows facing every direction but southwest. Daylight can be blocked out. **Electronic flash:** 2 360 American Speedlights; 3 Heiland Strobonar IV units; 1 Strobonar V. **Tungsten lights:** Rarely uses them except as work lights; has 4 1000-watt floods; 2 500-watt spots; 5 500-watt floods. **Reflectors:** large white-painted wood reflectors, and tin-foil reflectors. **Meter used:** Weston. **Special devices:** tripod heads have extra-large plates to help support cameras. Has stuffed animals (deer, birds, etc.) for use as props. **Backgrounds:** special flats painted to resemble sky; roll-paper backgrounds. Cameras: 8x10 Ansco View with 5x7 and 4x5 backs; 2 Crown Speed Graphics; 3 Rolleiflexes; 1 Robot; 1 Leica IIIc. **Amount of color work:** 90%. **Outstanding features of studio:** "My studio was once an old stable," says Ozzie Sweet. "It is out in the country and doesn't have the pressures of the big city on it. My models can relax.

TOSH MATSUMOTO • Daylight: 2 large north windows. Can block them out completely for tungsten shooting session. **Electronic flash:** 2 Ascor 600-watt-second units. **Tungsten light:** 4 1500-watt floods; 750-watt spot; 2 Dinky Inkies; 3 500-watt Alligator Clamp lights. **Reflectors:** drop ceiling; portable aluminum-foil wall. **Meter used:** Norwood. **Special devices:** still-life table specially constructed so flaps can be set at any angle to give background paper various contours. Aluminum-foil shells that reflect electronic flash. **Backgrounds:** pulley system hoists background paper up on wall. **Cameras:** 8x10 Deardorff with 4x5 and 5x7 backs; Rolleiflex. **Amount of color work:** 50%. **Outstanding feature of studio:** "Because I do most of my work under bounce-light conditions," says Tosh Matsumoto, "the studio itself has little value. I block out most of the daylight coming in so I can shoot under tungsten conditions. I use a drop ceiling for about all my studio work.

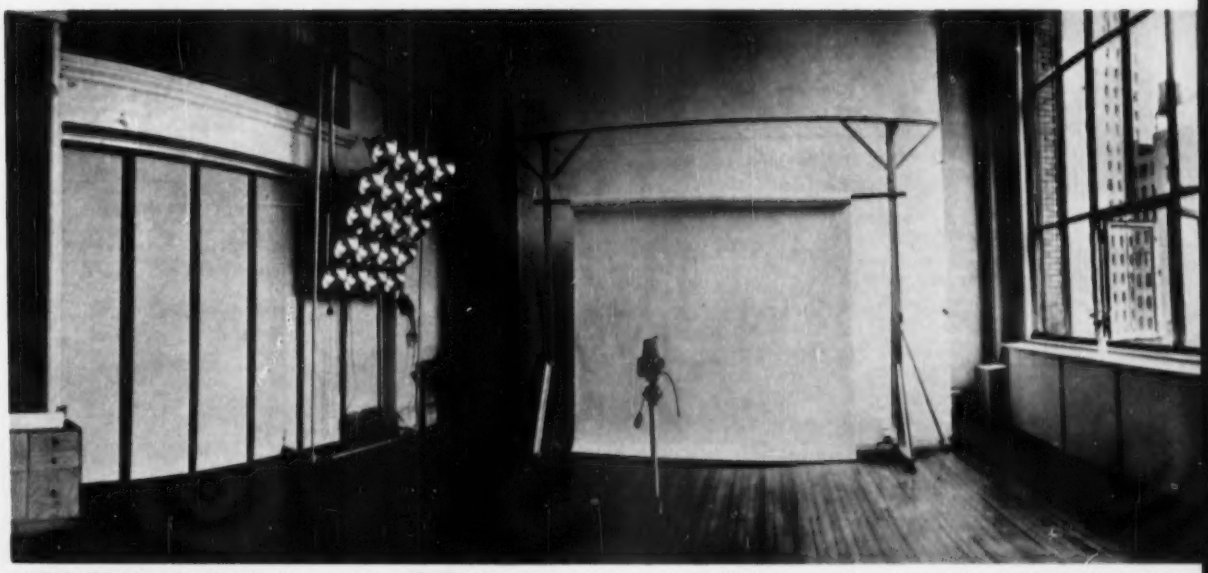
Continued on next page

Arnold Newman (left) and assistant, Bill Aller

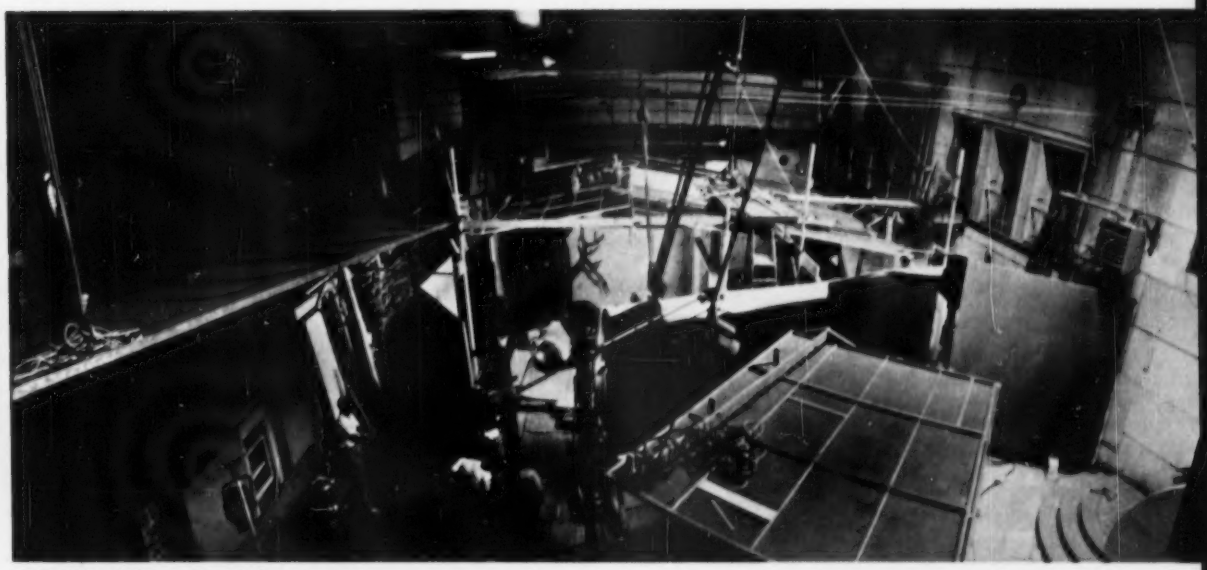
ARNOLD NEWMAN • Daylight: 2 north windows; a skylight; 2 normal-sized west windows; a normal-sized east window. Can control daylight or block it out. **Electronic flash:** does not use them in studio. **Tungsten lights:** 5 large Saltzman spots; 2 2000-watt floods; 6 Dinky Inkies; 16 500-watt clamp-on units. (All lighting equipment is interchangeable and portable.) **Reflectors:** drop ceiling will be built into studio. (Studio only two months old.) **Meter used:** Norwood. **Backgrounds:** builds each set specifically for assignment, breaks it down immediately after shooting session. "I never attempt to simulate a real situation in my studio," says Arnold Newman. "For realism I go on location." **Cameras:** 3 Agfa View cameras—8x10, 5x7, 4x5; 2 Meridian 4x5 cameras; a Hasselblad; a Leica. **Amount of color work:** 50%. **Outstanding feature of studio:** "Convenience and light quality," says Arnold Newman. "A studio is simply a place to do your work."



GERALD HOCHMAN • Daylight: 1 overhead skylight; 1 north skylight. Can block out light or diffuse it with curtains. **Electronic flash:** does not use it. **Flash:** Kodak Ektalux system for bounce flash—1 mainlight with 7 extensions. **Tungsten light:** 3 750-watt spots; 1 2000-watt spot; 2 2000-watt floods; 6 500-watt floods. **Reflectors:** entire studio painted white to reflect sunlight that comes through skylights. Ceiling-high portable flats can be moved into reflecting positions. **Meter used:** Norwood. **Special devices:** mirror mounted on wall behind photographer so model can watch own pose, and improve it. Freezer for storing film. **Backgrounds:** angle irons mounted in wall hold several rolls of background paper near ceiling; has 12 rolls specially designed by wife, Fiddy; 1 movable brick wall. **Cameras:** 4x5 Linhof; 4x5 Super D Graflex; 5x7 Deardorff; 8x10 Century Graphic View; Rolleiflex; Hasselblad. **Amount of color work:** Hochman considers it 50%.



BERT STERN • Daylight: 3 large north windows. Using shades and curtain can get type of light desired for shot. **Electronic flash:** has specially built 20-lamp unit which has never been used. Considers it extreme emergency light. **Tungsten light:** bank of 62 250-watt lamps (also considered emergency light and has never been used). **Reflectors:** no special devices. **Meter used:** Norwood. **Special devices:** none. **Backgrounds:** 15-square-foot flat used for background when using wide-angle lenses; stand that accepts 8-ft rolls of background paper. **Cameras:** f/2.8 Rolleiflex; Hasselblad; 8x10 Deardorff view camera with 4x5 back. **Amount of color work:** about 65%. **Outstanding feature of studio:** "It is the beauty of the light," says Bert Stern. "It's a stark, dramatic daylight." **Additional work area:** Stern has what he calls a "thinking room." Located on a balcony overlooking his studio, he plans most of his pictures in this room before starting a shooting session.



PAGANO INC. • Daylight: 4 24x30-ft northeast skylights; giant curtains can cut off all daylight. (Studio was formerly an indoor tennis club.) **Electronic flash:** 4 Sun Flash units, 10,000-watt-sec each; 2 Ascor 200-watt-sec units. **Tungsten lights:** over 200 different light units ranging from 5 to 5000 watts. Should a job call for a unique unit, it can be built in studio's electrical shop. **Reflectors:** build reflectors to order in wood shop and paint sets for maximum reflectance. **Meter used:** Norwood; Weston; General Radio electronic-flash meters. **Special devices:** built for specific needs shots. **Backgrounds:** built to order for each picture. Permanent backgrounds are 3 10x16-ft walls and 1 10x20-ft wall. **Cameras:** 8 8x10 Eastman Kodak View all-metal cameras; 7 8x10 Deardorffs; 4x5 Linhof; 3 Speed Graphics; 4 Graflex cameras, 4x5 and 5x7; many extra lenses. **Amount of color work:** 85%. **Outstanding feature of studio:** studio is highly flexible and large.

Continued on page 102

One flashbulb is enough!

A single flashbulb, even the tiny "peanut" variety, is far more powerful than you might think. It packs a blinding wallop of crisp, clear light whose full brilliance is only rarely used in its entirety with today's flash-synchronized cameras. But when combined with a slow shutter speed or the old-fashioned "open-flash" method, a lone flashbulb will provide enough illumination to light a whole auditorium or a building at night, as the accompanying pictures prove.

Most better synchronized cameras are operated by their users in the 1/100- and 1/200-second settings which are activated during the brightest moment of the life of the bulb, called the peak. The bulb itself is set off first so that it warms up, flares brilliantly and then fades—and all within about 1/50 second, in the case of popular Class M bulbs. Therefore, only the flare or peak of the bulb's life is actually utilized to make the exposure.

However, with proper synch setting, camera settings of 1/50 second and slower use practically *all* of the light-giving capacity of the bulb. In cameras where synchronization at slow speeds is uncertain, the full life of the bulb is used to make what are known as open flash exposures, employing either the B (bulb) or T (time) settings of the camera to open the camera shutter. The bulb is then flashed from battery case or house current and the shutter is closed.

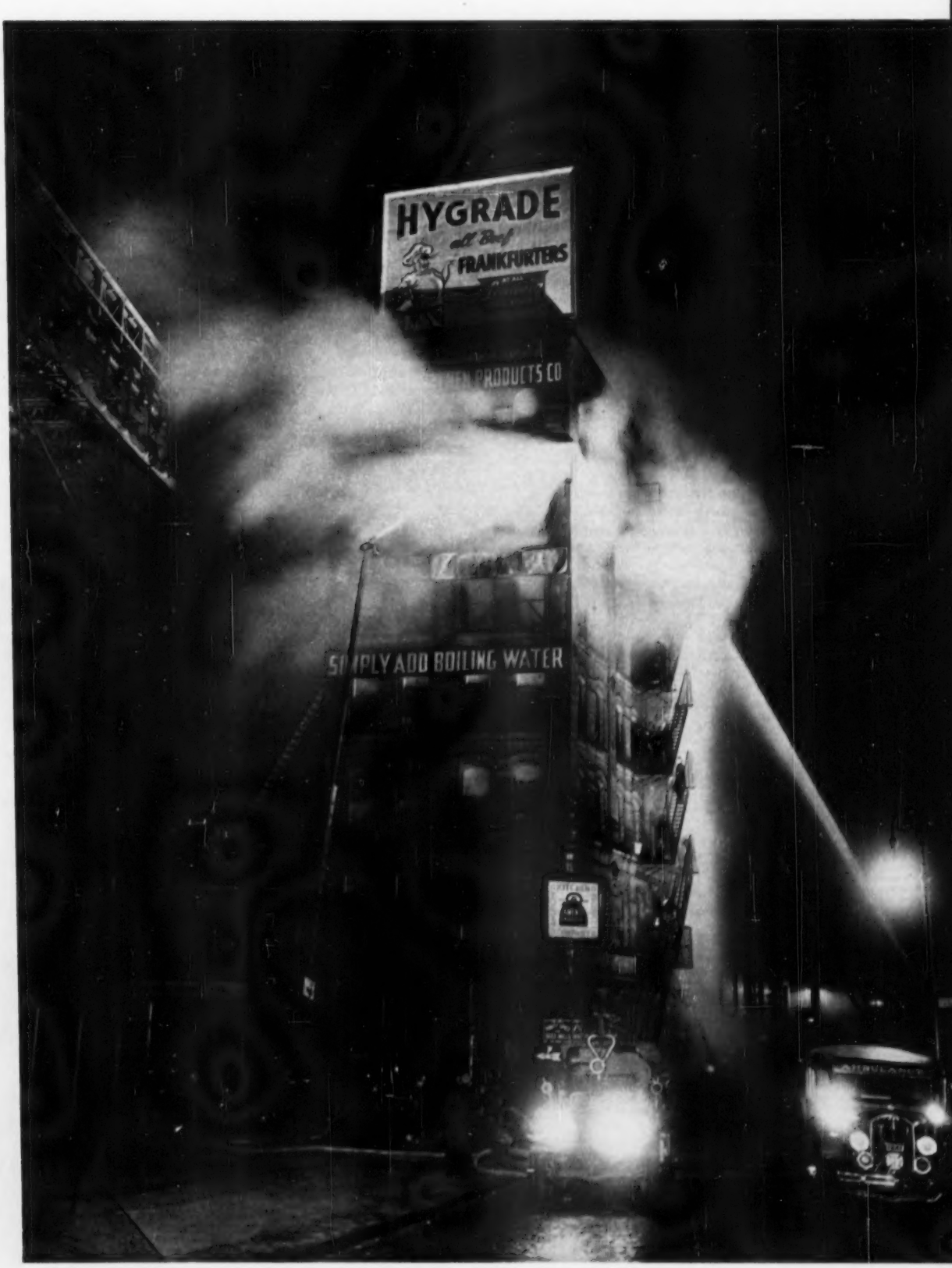
Obviously, then, this latter procedure uses all of the bulb's light-producing power down to its last lumen second (the scientist's yardstick for measuring the blast of light). How much light—how much exposure value—does this full use of the bulb add to its synchronized peak light? This varies, naturally, from bulb type to bulb type—but always it adds considerably to the effective light output. Flash exposure indexes take this into account by giving one exposure guide at peak settings of 1/100 or 1/200 and another for "open flash," usually doubling the effective exposure speed for the particular film, (*Continued on page* 140)

Large groups in banquet rooms and auditoriums can be covered adequately with one bulb if it is directed across audience, not down. Exposure here was open flash at f/8.

It produces an amazing blast of light when used with "open-flash"

Silhouette effects outdoors at night can be achieved with one bulb on a long extension. Shale miners were recorded on fast pan film with a No. 5 bulb. Exposure: open flash, f/8.

By GEORGE GILBERT



Buildings and homes at night also can be recorded if flashbulb's full light output is exploited by slow shutter or open flash. The grimly ironic picture above is a classic by Weegee, who illuminated entire 8-story burning building with Press 40 bulb.

UMBRELLA REFLECTOR

A tightrope walker's umbrella makes an

Close-up, above, shows umbrella attached to flash unit and light stand. Electronic-flash head clamps directly to end of umbrella shaft. A metal collar with locking thumbscrew attaches the shaft to a Graflex swivel, which, in turn, is fastened to top of light stand. Entire unit weighs 16 pounds. Two pictures below show umbrella reflector in action.

By BARRETT GALLAGHER

WHOEVER first thought of bouncing flash off a ceiling had a good idea. Result: soft, almost shadowless, natural-looking light. However, the light all coming from overhead sources produced highlighted foreheads and dark eye shadows, and better results could be obtained by bouncing from a wall or, what is even better, a corner between the walls and the ceiling.

Two or more umbrella units provide controlled bouncelighting over large areas and in locations where obstructions, height of ceiling, or color of walls make bounce technique impractical to use.

FOR BOUNCE FLASH

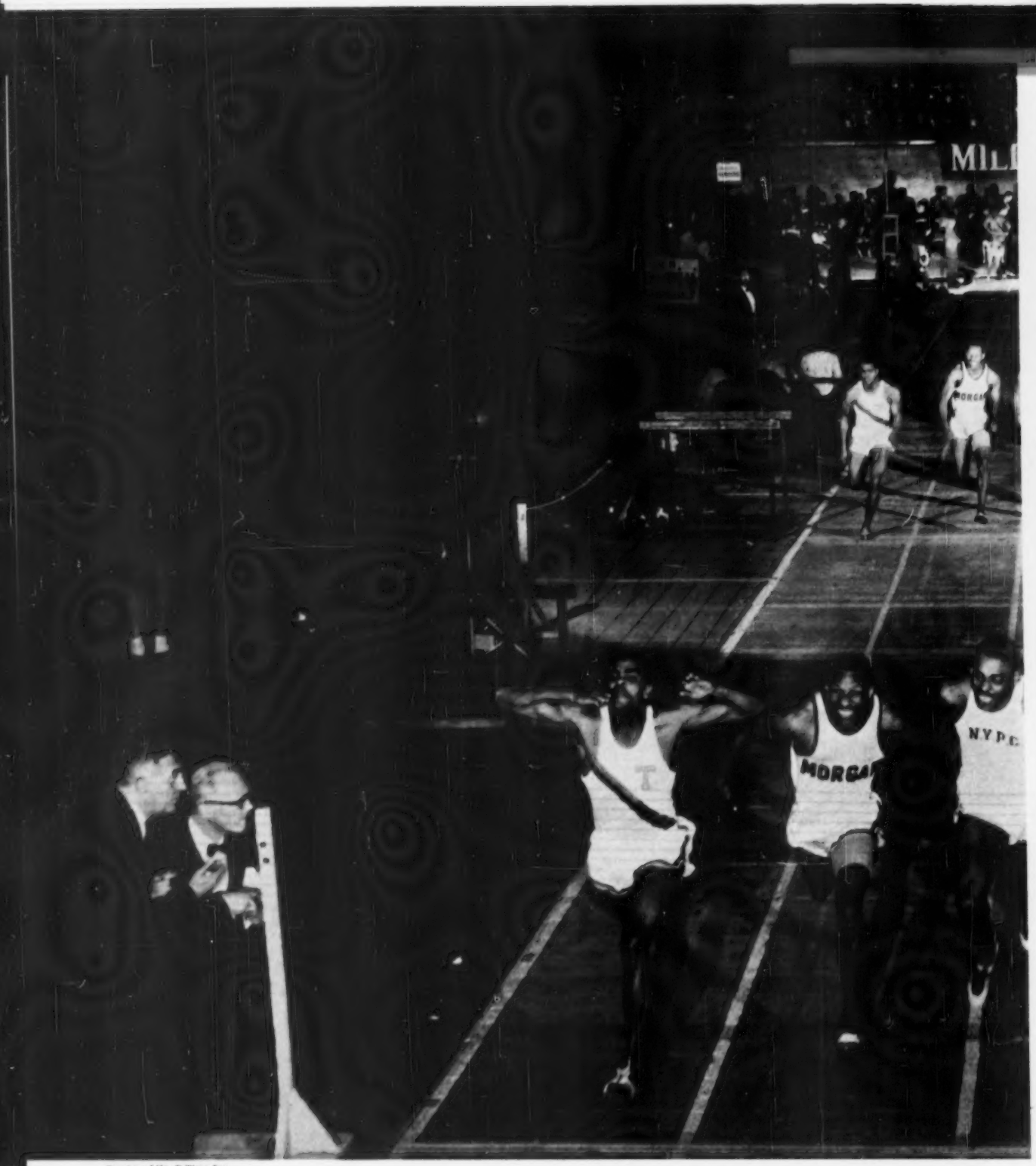
ingenious portable "ceiling" for controlled bouncelighting in any location

There were disadvantages though: the height and lightness or darkness of the ceiling greatly affected the exposure. Electronic flash, which worked well with daylight color films, presented another problem. White ceilings or walls are seldom white—either they are cream to start with or they yellow with age. Color exposure is more critical, too, and figuring factors for various ceiling heights caused many headaches and numerous errors.

In a naval story during the Korean conflict I bounced electronic flash off big white blotters. This worked fine but if there was no other convenient place to attach them where wanted the blotters had to be taped to a wall or ceiling or hand-held.

The problem of effective use of bouncelight was under discussion among magazine photographers for a long time but, like the weather, no one did anything about it until the boys at Scope (a co-op run by a group of magazine photographers), spark-plugged by Victor Jorgensen and Bob Smallman, came up with an idea—why not make a *portable* ceiling unit which could be quickly set up at any height and at any angle at home, office, (*Continued on page* 126)

Budapest String Quartet was photographed by Barrett Gallagher, during actual rehearsal just before concert a typical on-location assignment. He set up his equipment in a room offstage in order to capture fast action and work quickly with a minimum of distraction. Exposure: Ascor 200 Speedlight bounced at f/8 with one umbrella placed at 15 feet.



Courtesy *Life*, © Time Inc.

LIGHTING PROBLEMS

The ways of light are various and its challenges are many. But skilled photographers

is a portfolio of pictures in which light presented problems and photographers

PROBLEM: *To show three stages of a foot race in one picture.*

Ralph Morse of *Life* shot the 60-yard dash at Madison Square Garden using 6 large speedlight units, wired in pairs to illuminate three spots on the track (four of them can be seen here). He made 3 exposures with a Speed Graphic from a cage suspended above track.

know its ways, and how to meet its challenges. Here

solved them—by simple or ingenious means

Walter Chandoha

PROBLEM: *To set off dark accents against white, or highlights against black.*

The general approach in the three pictures on this page was to expose generously, losing detail in highlights, and overdevelop for increased contrast. Walter Chandoha used a 160-watt-second bounce speedlight unit for his cat picture. Van Deren Coke found that 1/50 second at *f*/11 was the right exposure to semi-silhouette his subject against the snow. Joseph Spies used an excess of flash—on the camera, close-up—to blank-out all detail except cat's face. On the facing page is a strong low-key picture in which only the highlights have adequate exposure. Pål-Nils Nilsson based his setting on a meter reading from the curving curb in the foreground, and almost all the rest of the subject was lost in darkness due to the underexposure.

Van Deren Coke

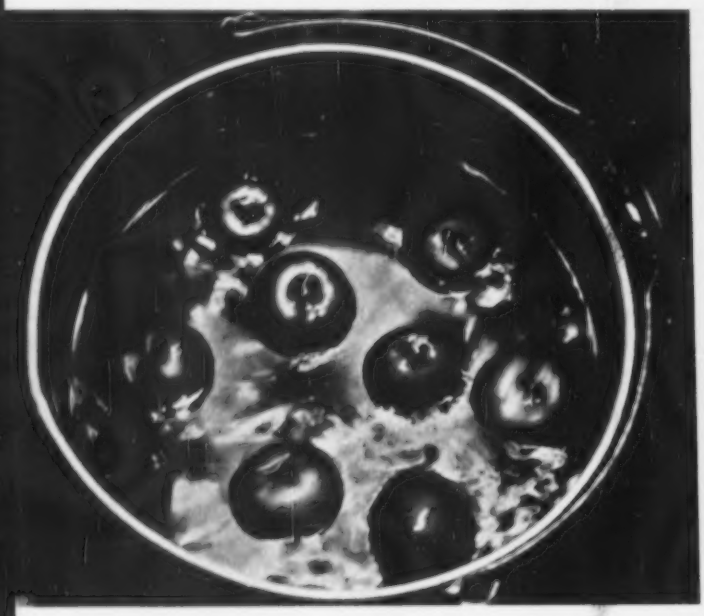
Joseph Spies

Pål-Nils Nilsson

→

PROBLEM: *To capture play of light on water.*

Wright Langley, Jr., recorded the quicksilver sparkle in a pail of bobbing apples by setting his Rolleiflex at 1/10 second and *f*/3.5. He shot from above, after first setting the water in motion by tipping the pail. Highlights on each wavelet look like wisps of smoke because of slow shutter speed.



PROBLEM: *To show correct swing and stance.*

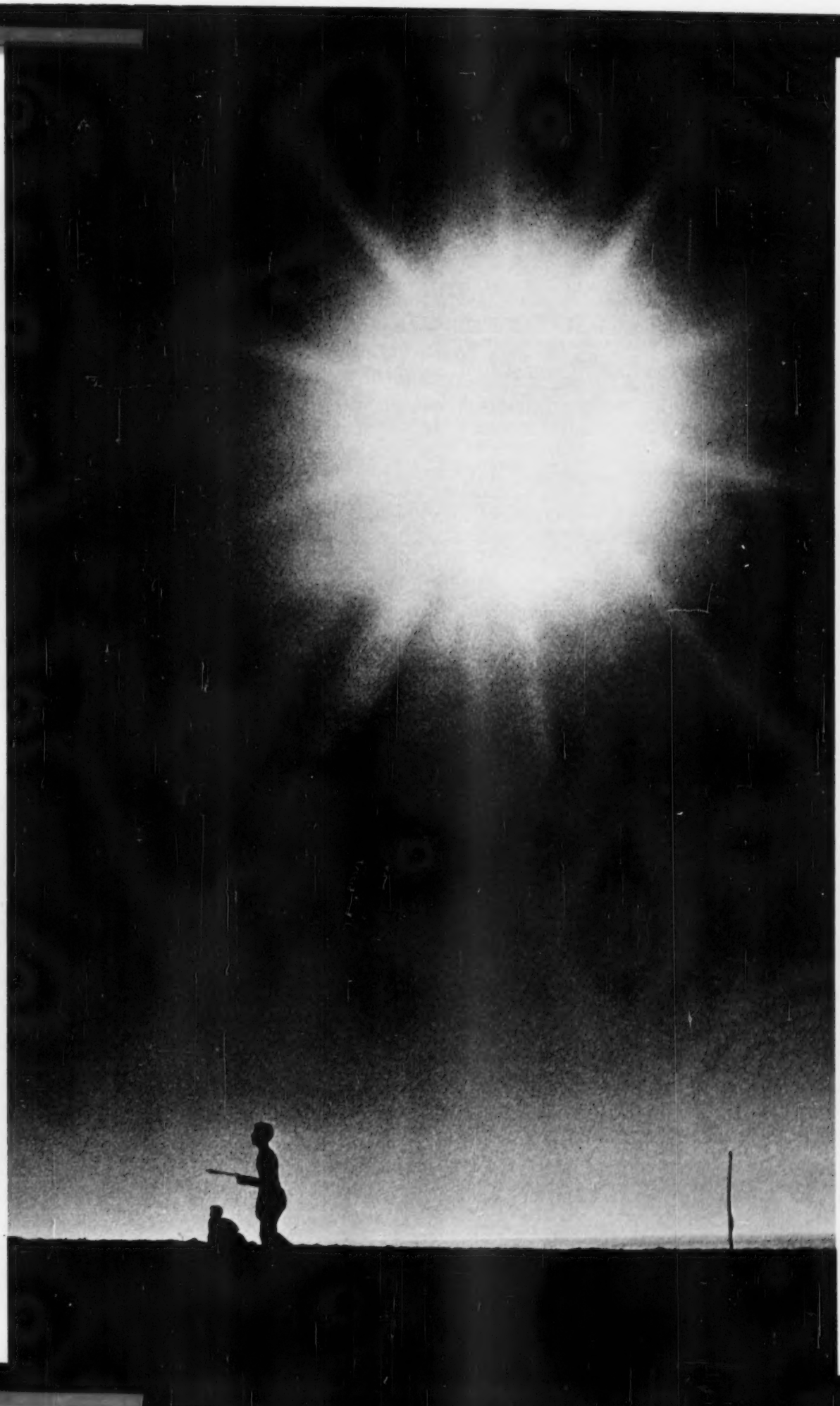
To make this picture for *Parade*, David B. Eisendrath made a double exposure, first tracing the stroke by placing a bulb in the head of the golf club. When the club hit the ball, he set off electronic flasn to photograph the golfer and stop the golf ball. A Graphic and Super-XX film were used.

PROBLEM: *To record a moonlit sky and brightly lighted foreground area in a single exposure.*

Veteran pro Sam Falk drew on long experience in shooting the Ellenville, N.Y., music festival. With his Contax on a tripod, he made a dozen exposure-bracketing shots; the correct one was 40 seconds at *f*/4.7. The bright lights in and around the tent caused some flare, but this was largely remedied by dodging during enlargement. Much of the light falling on the foreground came from the sky rather than from the tent. Note that the clouds show motion blur, but not rapt audience.

PROBLEM: *To shoot directly into a source of light.*

If the light is not too strong or too close, and there is other illumination on the subject, the solution can be like John Bryson's in his shot of George Gobel (above). Bryson used a Leica IIIf, exposing 1/100 sec at *f*/5.6 with studio lighting on Tri-X. He shot directly into a spotlight to give the starburst effect. Ken Whitmore had to use both red and yellow filters to shoot the sun itself, exposing for 1/500 sec at *f*/22.



35-MM SECTION

CONTROLLING AVAILABLE LIGHT FOR PORTRAITS

THE 35-MM CAMERA CAN CAPTURE A REMARKABLE VARIETY OF LIGHT ON LOCATION

By BARRETT GALLAGHER

My wife Timmie and I were finishing up a *Fortune* assignment at the Bell Aircraft Company near Niagara Falls, N.Y. We had completed the job but had to wait over an extra day to photograph Mr. Bell himself, who was due back from a trip. When he arrived we were invited to his home and offered all the time we needed. We had three speedlights and umbrellas to bounce them from (see page 80 for details of our umbrella technique) and the offer of additional lights from the company's photo department. We knew that with the pressures of deadline and distance we *had* to produce—there could be no retakes. We made no attempt to unpack our lights. Instead, spotting an uncluttered trophy room partly lit by indirect fluorescent lamps and partly by daylight from a window, we made our shot by available light. You'll see the result when you turn the next page.

Why did we arrive with so much lighting equipment and yet choose to use only available light for our portrait?

There are several reasons, of course,

By moving the model around in a limited area and by changing the camera position, you can obtain a wide variety of different portrait effects using available light. The series below was made in a kitchen in which the light came from windows on three sides of the model. One 100-watt overhead room lamp in a white globe was sometimes used.

Pictures were made using a Leica with 85-mm f/2 Nikkor lens.

Backlight from windows on three sides. 1/50 sec at f/2

Backlight from windows plus ceiling light. 1/50 sec at f/2

Backlight plus reflected light of enamel table. 1/50 sec at f/2

Backlight, reflected light, and ceiling light. 1/50 sec at f/2

Frontlight from windows on three sides. 1/50 sec at f/4

Second series of 35-mm portraits, right, was made at far end of kitchen shown on opposite page. The light was furnished by two room lamps, each of which held a 100-watt bulb in a translucent shade except for one shot made with opaque shades. Leica with 85-mm lens was used.

Two room lamps with 100-watt bulbs, one on each side of model. 1/25 sec at f/2.5

Same as above but with white cloth placed on the kitchen table.

One lamp at left, some light from opposite window. 1/25 sec at f/2.5

Same as above but with reflection from tablecloth. 1/25 sec at f/2.5

Two lamps with opaque shades plus tablecloth. 1/25 sec at f/2.8

which should be familiar to you by now. One of the chief advantages of available light is that it is real—there is an air of truth about it that could be re-created only with the most elaborate lighting setup, if at all. Think of the problems of reproducing on a set the light in a room from several windows and lamps plus reflecting walls, ceilings, floors, tablecloths, furniture, etc.!

In addition, lighting in many rooms has been carefully planned to flatter the human face. Normally, the range of brightness is arranged for the eye's comfort so the background falls into a natural relation to the face—quite unlike the typical light of direct-flash pictures, for instance, which give us a white face looming out of the dark cave of the background. Under available light, with fast lenses opened wide for the low light level, backgrounds drop out of focus much as they do in our actual vision.

Now the important reservation that is usually made about available light for portraits is that it is haphazard, subject to too many accidents, undirected, and to a large extent uncontrollable. This is

Frontlight plus ceiling light plus table reflection. 1/50 sec at f/3.5

Sidelight from windows at left of model. 1/50 sec at f/3.5

Sidelight from windows at left plus ceiling light. 1/50 sec at f/3.5

true only if you are shooting a news or documentary event where moving the subject or changing the relationship of the lights in any way is impossible. But usually, when you are called on to make portraits, you can certainly explore possible backgrounds, different light sources in the room, and such important details as the lightness of the walls or the disposition of the room lamps—all of which control the quality of light on the face.

Good portrait lighting with available light requires selectivity of both pose and light source. The results can be as satisfying as if you had the model in a studio once you learn to use the materials you have at your disposal in any normal shooting situation.

Most important of all, with the low levels of available light, *small changes make great variety possible.* Turning your subject into or away from the light will make a great difference, changing flat frontlighting to dramatic backlighting, for example. A small movement toward or away from a window or lamp may drastically alter the lighting balance of the picture, giving you a possible range extending from extreme high-key to extreme low-key lighting. A newspaper thrown on a table in front of the sitter will reflect enough light from below to completely change his appearance. A lamp turned on or off across the room can make a considerable difference in the quality of light.

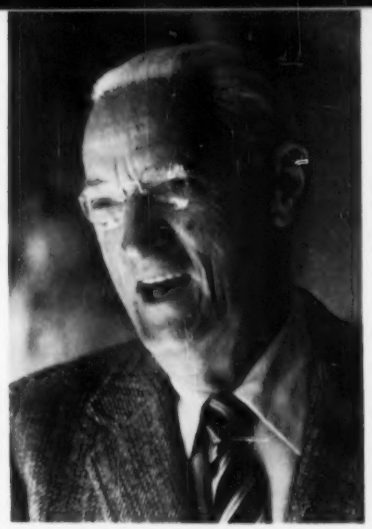
Look for covered porches with open sides and rooms with lots of windows or with picture windows. Look, too, for

Rear Admiral Robert Burns Pirie, USN, was photographed by the author on the flagbridge of the USS Coral Sea. Fine portrait lighting is often found in such partly enclosed areas, especially on overcast days when there is enough diffused light to act as fill-in. Leica, 1/100 at f/4 on Plus-X.

opportunities to use fluorescent lighting, which is soft and pleasant, especially in modern buildings where the whole ceiling may be louvered to provide a continuous soft light source.

In the end, remember that it's the eye of the photographer, not the limits of any lighting system, that controls the portrait. With 35-mm's fast lenses and films, available lighting effects are possible that all the facilities of the biggest Hollywood stage would be hard put to equal. Take advantage of them.—

High-key portrait was made by available light coming through window behind girl plus light reflected from foreground table.



Excellent portrait light was obtained here by shooting on an open porch and bouncing sunlight into face from newspaper below model.

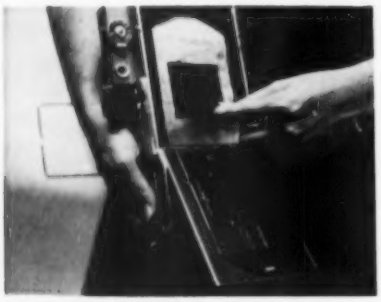
Lawrence Bell of Bell Aircraft was photographed by available light which consisted of fluorescent light from the ceiling and windowlight from the left. Complex, realistic quality would have been difficult to re-create in a studio. An Exakta was used, 1/100 second at f/2.8 on Tri-X film.

35-mm SECTION continued on page 120

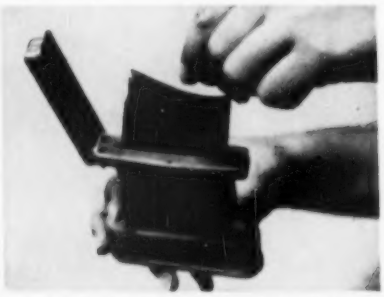
SLIDES

New Polaroid film produces black-and-white positive transparencies in two minutes

FROM CAMERA TO SLIDE IN TWO MINUTES:



Film is stripped from camera...



And inserted into *Dippit* for

POLAROID LAND PROJECTION FILM IS RATED AT ASA 1000,

ASA 125: washed-out highlights

ASA250:goodhighlights,shadows

WHILE YOU WAIT

ONE-MINUTE prints now have a brand new brother, two-minute slides. The latest development of the Polaroid Corporation, these slides make it possible to have a black-and-white positive transparency, ready for viewing, in two minutes, using regular Polaroid Land cameras.

The secret is Polaroid Land Projection Film. Similar to the standard Polaroid film, the new film has a cellulose material instead of a paper backing upon which the negative is printed. When the positive is removed from the camera, it is a transparency, suitable for direct viewing or for projection through a newly designed Polaroid projector.

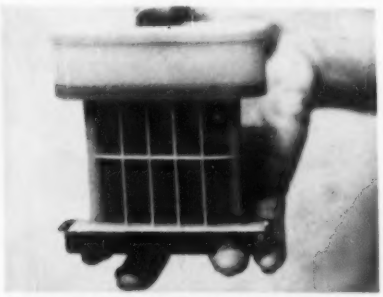
The manufacturers rate this film at ASA 1000 and supply it in two sizes, one for the regular Polaroid cameras and one for the smaller Highlander Model 80. Two frame sizes, 2¼-inch square and 3¼x4 inches are available in the larger sized film. (The Highlander-size film offers the 2¼x2¼ square format only.) The 3¼x4-in. transparency is the standard lantern slide size and will fit any projector taking lantern slides. The 2¼-square size is used in the Polaroid projector in special plastic mounts or can be trimmed to fit 2x2 slide projectors.

An unusual aspect of the two available sizes is that the framing is on the film. The larger sized film is numbered 46 and 46L, the former yielding eight 2¼x2¼ pictures, the latter, eight 3¼x4-inch pictures. There are no masks to insert or changes to make in the transport mechanism. A finder mask is available to slip over the front wire frame finder so as to make composition easier when using the square format, but in all other respects, making slides is as simple as making standard Polaroid prints.

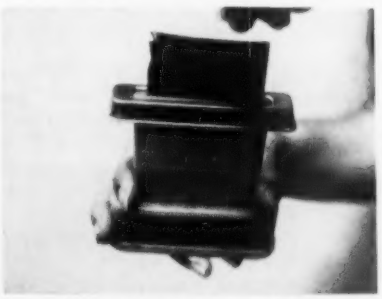
After the exposure is made, the film is processed for two minutes in the camera instead of one minute. The transparency is then allowed to dry for a few minutes before being placed in the Dippit, a clever little plastic gadget with a compartment containing hardening solution and rubber lips at the top. The lips are opened to permit the transparency to

(*Continued on page* 101)

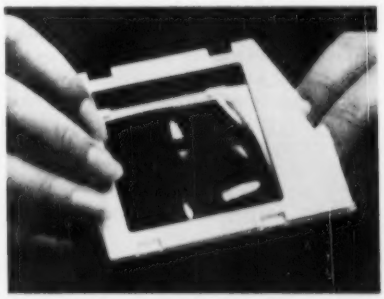
THE STEP-BY-STEP STORY OF POLAROID'S NEW PICTURE PROCESS



Ten-second bath in hardener.



Film is squeezed dry, then . . .



Placed in special plastic mount.

EXHIBITS GOOD LATITUDE AND PICTURE QUALITY

ASA 500: maximum quality

ASA 1000: manufacturer's rating

ASA 2000: definite underexposure

The Kodak BULLETIN

$9 color-print lab;

—how to shoot a frog, a rodeo, or a microbe, with a 35mm camera that never lets you down . . . good housekeeping in the darkroom, and aids thereto . . . convenience packaged in bottles . . . the excitement of trying new print papers, and a large assortment to choose from as the 1956 darkroom season opens

Color-print lab, $9.00

How much would it cost to set up a color-printing lab in your home darkroom? Why, $9. The cost of nine CC filters at a dollar apiece.

We assume you have a tungsten-light enlarger, set of print trays, and such. And an accurate thermometer, basic for developing the color films you're going to print *from*.

To make full-color prints on Kodak Color Print Material, Type C, from your Kodacolor negatives, you now acquire these Kodak Color Compensating Filters:

Red: CC-05R, CC-10R, CC-20R
Magenta: CC-05M, CC-10M, CC-20M
Yellow: CC-05Y, CC-10Y, CC-20Y

The 05, 10, etc., are densities, and densities add, so these filters can be stacked up for just about any degree of correction you need. CC Filters are used when you need to correct the color balance of a negative in printing—eliminate excess blue, green, and the like—or

do some special dodging tricks, holding back a certain color in one area, building it up in another, and so forth.

In 3-inch gelatin squares, each filter is $1. You may want to add others later, but the nine above make a good working set at the start.

Now about *materials*. Kodak Color Print Material, Type C, 8 x 10 inches, is $10.15 for 25 sheets. More costly than black-and-white, but mighty cheap for full-color prints. All the chemicals you need come in the Kodak Color Print Processing Kit, Process P-122. This kit costs $8.15 and makes a gallon of each solution. That's it.

We think $9 is a right small capital investment to convert a home darkroom to color. Handled with due care, these nine filters will last indefinitely. And the print materials and chemicals, used efficiently, work out to less than 75 cents per 8 x 10 color print.

There is no extra cost for the thrill you get when you look at your first prints, or the double thrill when you wave them at your wife or your best friend and say, "Look what I did." You can't *put* a price on things like that.

Good housekeeping

The critical darkroom worker knows the importance of cleanliness in making fine prints. Here are a few ways to win the battle against dust, dirt, smudges, blotches, and stains.

▶ Wipe your just-developed negatives free of water and sediment with a soft, clean, absorbent Kodak Photo Chamois. 80¢.

▶ Keep your negatives in crystal-clear Kodapak Sleeves and they won't get scratched. Come in sizes from 4.5 x 10.7 cm to 11 x 14 inches, priced from $1.70 in packages of 100.

▶ A bit of gentle blowing and a dust-off with a fine Kodak Camel's-Hair Brush get rid of stray dust on your negatives. 1-inch brush, 85¢.

▶ You take care of a smudged, dusty enlarger lens with Kodak Lens Cleaner and Kodak Lens Cleaning Tissue. 40¢ a

bottle for the cleaner, 90¢ for a dozen booklets of the paper.

▶ Keep chemicals off your fingers, prints, and negatives with a 35¢ Kodak Stirring Paddle.

▶ Keep yourself spotless, too, with a Kodak Darkroom Apron. Large size, $3.50; medium, $2.75.

Your Kodak dealer is your housekeeping supply man.

Wet and quick

There is a small group of classic darkroom workers who like to mix their own chemicals from scratch, working up their own formulas, varying standard formulas to suit themselves. We respect their ambition and if you'd like to join the group, we recommend you get started by picking up a copy of the 50¢ Kodak Data Book "Processing Chemicals and Formulas."

Most of us, though, like to get our chemicals already compounded, spend as little time as possible mixing, and get on with the business of the evening, developing and printing.

For the latter group, we'd like to remind you that many Kodak chemicals now come in liquid form. All you need

do is mix them with water and you're ready to go. Here's a quick rundown on those Kodak liquid chemicals you might be interested in:

Kodak Microdol Liquid Developer, 1 qt., $1
Kodak Microdol Liquid Replenisher, 16 oz., 75¢
Kodak Versatol Developer, 8 oz., 35¢
Kodak Indicator Stop Bath, 16 oz., $1.05
Kodafix Solution, to make one gallon, $1
Kodak Liquid Hardener, 8 oz., 51¢
Kodak Brown Toner, 8 oz., 90¢
Kodak Rapid Selenium Toner, 8 oz., $1.25

Like all Kodak chemicals, you can count on them being fresh, uniform from batch to batch, accurate. Next time you need to stock up on chemicals, give the liquids a try.

$190 adventure

Favorites

It seems as if every serious darkroom worker has one paper that's a particular favorite. This is only natural. You find a paper that gives you consistently good results, seems to match the kind of negatives you take. After a while, you've so much experience with it you use it almost automatically.

We aren't going to suggest you drop your favorite. What we suggest is that you broaden out, try several other papers just to learn what they can do. Then, when you have a negative that you can't seem to do justice to with your favorite paper, you'll have a good idea what paper will.

Say you've been using Kodabromide Paper for years. You like its high speed, wide exposure and development latitude, the brilliant and rich blacks it gives you, the availability of five grades. Just for fun, try a few sheets of Kodak Opal Paper. It's quite a bit slower than Kodabromide, but that gives you extra time for manipulation. You'll find it has a very pleasing warm, brown-black tone. And Opal comes in just about every paper tint, brilliance, and surface you could think of, from a cream smooth lustre to an old ivory suede matte.

Or try Kodak Medalist Paper. You'll find it a little warmer than Kodabromide, only slightly slower. You'll particularly like the way the four printing grades are similar in speed, and give you a continuous range of contrasts from high to low, simply by varying exposure and development time.

Ask your Kodak dealer to show you his paper sample book. Pick two or three you're not familiar with. You'll find it a worthwhile experiment, and possibly a road to better print-making.

35mm adventure

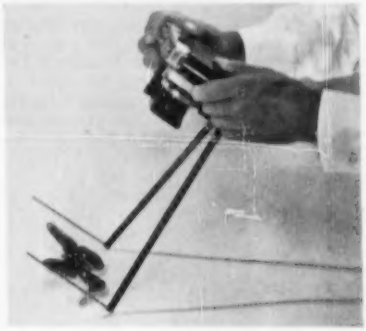
Photographers are an adventurous breed. They like to try new things, experiment, learn new techniques, master them, and move on to others. We suspect this is one of the reasons why the Kodak Retina IIIc Camera is such a popular miniature. For the Retina is a camera that will keep pace with you wherever your photographic interests lead.

Are you interested in sports photography? The Retina IIIc is a fine sports camera just as it comes, with an *f*/2 lens, an action-stopping 1/500 shutter, a one-stroke thumb lever that advances the film and cocks the shutter with the camera still at your eye, and a coupled diaphragm and shutter that lets you change shutter speeds in a hurry without refiguring exposure. For longer focus to reach out and bring in distant action,

there's the 80mm *f*/4 Kodak Retina Longar Lens Component. And there's the Kodak Retina 50-80 Sports Finder for both the 50mm and 80mm lenses, with open-frame design that lets you see the whole field of action while you're framing the selected area. And, to take in a wider field of action, there's the wide-angle Kodak Retina Curtar Lens Component, 35mm *f*/5.6, and its matching Kodak Retina 35-80 Optical Finder.

What about table-top photography or close-up nature studies? The Retina IIIc *f*/2 lens and lens-coupled rangefinder focus down to a tight 2½ feet. The depth-of-field scale gives you a quick, accurate check on what's in focus. But when 2½ feet isn't close enough, there's the Kodak Retina Close Range and Viewfinder Kit, Model B, that lets you focus down to 11⅝ inches. It includes two auxiliary lenses and a parallax-correcting viewfinder with a close-up superimposed-image type rangefinder that clips on the top of the camera.

Now, how about *ultra*-close close-up work? You'll find the Kodak Retina Close-Up Kit, Model B, gives you what you need—four pairs of field guides that



accurately frame the picture area and make it possible to get needle-sharp focus down to 6 inches, a field guide holder, and three auxiliary lenses. This is *precision* close-up photography.

Does photomicrography look exciting? The superb quality of the Retina's standard 50mm Retina-Xenon C Lens coupled with a Kodak Retina Microscope Adapter Kit, Model B, lets you do some really fine photomicrographic work. Professional quality.

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(By the way, the Retina IIc, *f*/2.8, $139.50, uses the same special photo aids. Ask your Kodak dealer.)

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An Eye for Lighting

(*Continued from page* 54)

light is half the brightness of the highlight areas of the face. While this ratio was quite suitable for color, it fails to give the most pleasing illusion of roundness. Picture 3 showing a light ratio of 4:1 illustrates the fact that a black-and-white picture in comparison with a color picture will show the shadows a little closer to the way they appeared to the eye. They are reproduced darker, to be sure, but not by as much as in the color example. The difference then, is one of degree.

Let us look still further at this picture. To many people, there is an apparent "overmodeling" of the shadow side of the face in this picture. In other words, the light side of the face needs more tone variation in it to balance those of the shadow side. In good portrait lighting practice, the light is usually shaded somewhat so as to darken the side of the face which is nearest to the mainlight. Only the front portions of the face receive the full mainlight.

Strong shadow patterns are shown in picture number 4 of the series. This represents a light ratio of 8:1. You may want to use light contrasts of this sort to obtain dramatic effects and, when properly handled, they produce striking results.

Black-and-white films will record a wide variety of lighting ranges and personal preference will generally indicate what light ratio to use. It might be pointed out that an approximate ratio of 3:1 would be suitable either for color or black-and-white. This is borne out by the fact that excellent black-and-white reproductions are being made as a matter of course every day from good color transparencies and show no lack of modeling or depth.

A series of three pictures shows the effect of background light intensity on an otherwise normally illuminated subject. The subject lighting ratio was approximately 3:1. Picture 5 was made with a neutral background which was lit with half the total illumination falling on the subject. This value of background brightness seems to contrast most pleasantly with the flesh values. This is true whether the background contains some detail subordinate to the subject or whether it is a plain area, as in this example. Picture 7 was made with the background receiving four times the light incident upon the subject. You see that the background is not "burned-out," or it may be said that the film was able to retain the brightness difference between subject and background. However, the important thing to see here is the way that this overbright area behind the subject throws emphasis on the shadowed area of the face. Nearly everyone has tried to print this type of negative at one time or another. It seems very difficult to avoid a flesh tone that looks dirty and grayed-over.

Seeking to avoid such difficulties, you may say, "Let's keep the background keyed down and we'll have an easier time printing the faces to just the tone we want." Picture 6 was made in just that

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way. The background had only one twelfth of the subject illumination. Notice that it did not go completely black, which again demonstrates that black-and-white films can accept great differences in subject brightness. But, now notice how the model seems to be sinking back into the background. There is insufficient difference between the grays that represent the shadows of the subject and the gray that is the background. Emphasis has now shifted to the light side of the face, in fact it looks lighter. *The forehead area in each print is of identical density.* We can now summarize our observations as to some of the differences and similarities between black-and-white and color film:

1. The difference between highlight area and shadow area which is apparent to the eye will always be emphasized in the reproduction by either type of film. Color films will emphasize these differences more than will black-and-white films.

2. Flatlighting is much less satisfactory with black-and-white films. In monochrome pictures, much of the effect of roundness must come from carefully placed shadow patterns. A ratio of 3:1 will often be satisfactory for either type of film.

3. Black-and-white films will retain detail in brightly lit backgrounds or those which are dimly lit without the loss of detail which would surely be apparent if color films were used on the same subjects. However, the effect on the subject is usually not as pleasant as it might be if the brightness of the background were near or slightly less than that of the subject.—

Ansco Tungsten Film

(*Continued from page* 68)

sults of shooting under warm (yellowish) and cool (bluish) fluorescents, fluorescents plus tungsten, and a tungsten street lamp. The last is probably the most remarkable of the group. The young man standing in the doorway was about 20 feet away from an ordinary street light. The Zunow f/1.1 lens found an ideal application here; the Leica M3 was held steady against the building stoop. If the film were pushed to 125, the shot could have been made with an f/2 lens—or with the Zunow at ¼ second, wide open. But more about pushing later.

Pictures made under warm fluorescents, like the subway shot, were generally a little on the cool side, while those made with the cooler tubes were far too bluish. It is clear that the Daylight Type film would be a better choice for the latter light source. Under a combination of tungsten and fluorescent light, the result was still within the acceptable range of color fidelity.

Some pictures were also made with the 3400 K film in daylight, with an 85 or Type A Daylight Conversion filter. The results were a bit warmer and somewhat less contrasty than those made on Daylight Anscochrome at the same time.

So far we have spoken only of using the film with processing for a recommended

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speed index of 32. Having completed these tests of its "normal" performance, we were anxious to see what would happen to color rendition, contrast, latitude, and grain when it was pushed to double and quadruple the recommended speed.

Let's see first what the film's characteristics are at 32. It has a grain structure comparable to that of a good medium-speed black-and-white film. Latitude or "margin for error" seems to be about one stop in each direction without too much deterioration of pictorial quality. Like most reversal color films, Anscochrome Tungsten shows its best latitude characteristics when slightly underexposed. For example, with two stops underexposure the resulting transparencies will often be acceptable (depending, as always, on your definition of "acceptable"). But at two stops overexposure, flesh tones begin to wash out unpleasantly.

An interesting characteristic of this new film is that many transparencies believed to be definitely "under" when viewed at the usual light level of a standard viewing box, exhibited a wealth of colorful detail when examined by stronger light. The effect might be compared to that of a good but dense black-and-white negative which merely requires long printing exposure.

Processed for an index of 64, the film showed little difference in performance, except that there was some loss of density in the extreme shadow areas. As a matter of fact, some color labs now offer processing of Anscochrome at 64 routinely, at no extra cost. Your local finisher can probably give you names and addresses, if he does not offer the service himself.

At an index of 128, little color shift was noted in the batches of film exposed by this writer. But it is risky to make definite statements about color shift, even when talking about normal-speed processing, since many factors are involved: storage of film before and after exposure, color characteristics of lens glass, processing variations, variations in color of artificial light sources.

The chief problem in exposing and processing for 128 was a considerable loss of shadow density. This could be annoying in shots with large areas of deep shadow. In shots with bright colors, and few blacks or near-blacks, shooting and processing at 128 produced results that were pictorially acceptable (there's that controversial word again!).

Latitude at 64 and 128 was approximately similar to that at an index of 32. As for grain, at 64 the increase was slight; at 128 it was noticeable but not catastrophic.

In conclusion: even at the normal rating, Anscochrome Tungsten Type film offers interesting possibilities to the creative photographer. The fact that its color balance, 3400 K, is closer to most ordinary light sources than are flash-type films makes it better suited to available-light work. The film can safely be pushed to 64, and if poor blacks are no objection, 128 can give amazing results.

The fact that no filter is needed for use with photofloods makes it ideal for indoor portraiture and still life. Even at 32, the smaller apertures or faster shutter speeds possible are a great advantage.—

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Slides While You Wait

(*Continued from page* 95)

be inserted, then closed by means of a metal clamp and the whole thing turned upside down. This allows the solution to harden the film. After ten seconds, slide the transparency between the closed lips, which act as a squeegee, and put in a special plastic mount. Care must be used with this step. If the film is wet when first inserted, the lips of the Dippit can scratch the image.

The quality of the transparencies we produced was good. Some of our first rolls were not quite up to the given speed ratings, producing their best results at ASA 500. However, later rolls seem to be much faster, giving very good quality at ASA 1000. A very pleasant feature of the new film is the nice, open shadows it gives. The film is panchromatic and has excellent gradation with a very fine, even grain that manages to hold detail.

The applications of this new process are almost limitless. The most obvious ones are, of course, any situation where something must be shown to a large number of people and there isn't time for making duplicate prints or for preparing conventional slides. However, it lends itself nicely to general picture-taking. In many ways, slides are the ideal way to show pictures and the new film provides them with as little trouble as possible. The high speed allows pictures to be made under all normal and slightly less-than-normal light situations with comparative ease.

No retail prices have been set yet but advance indications are that a roll of projection film for large sized cameras will be about $3.45, with film for the smaller Polaroid camera about $2.55. The white plastic mounts will sell for $2.75 in the 2¼ inch size and $3.55 in the 3¼x4-inch size, in sets of 48 mounts.

Polaroid plans to provide service for copying transparencies or for making prints on paper, with prices about the same as comparable service for Polaroid prints.—*Harold Martin.*

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Inside 9 Studios

(Continued from page 77)

A picture starts in a photographer's mind and not in his studio. To fulfill the image in a man's imagination takes different types of equipment, different space, and daylight requirements. Because of this, there are no two studios exactly alike.

It would be much easier if a photographer could push the sun around, or pull clouds across it to diffuse the light. If he could, there would be little need for a studio. But he can't, and the studio is the only place where a photographer can be the master of his own world of light.

How good are these photographers as masters of light? You have no doubt been looking at their photographs for many years.

Dr. Roman Vishniac's close-ups of microscopic life have appeared in *Life* magazine's *The World We Live In* series, and other of the country's top magazines. He was honored for his work with an award from the American Society of Magazine Photographers.

Bert Stern is probably the best known photographer in the field of advertising today. His work for Smirnoff's Vodka has appeared in the nation's top magazine. Stern's eye is responsible for "waking up" advertising photography in general.

Tosh Matsumoto specializes in still lifes. His editorial photographs have appeared in *Esquire, Modern Bride,* and *McCall's.* On the advertising side he has made pictures for Steuben Glass, Lord Calvert, and Ronson.

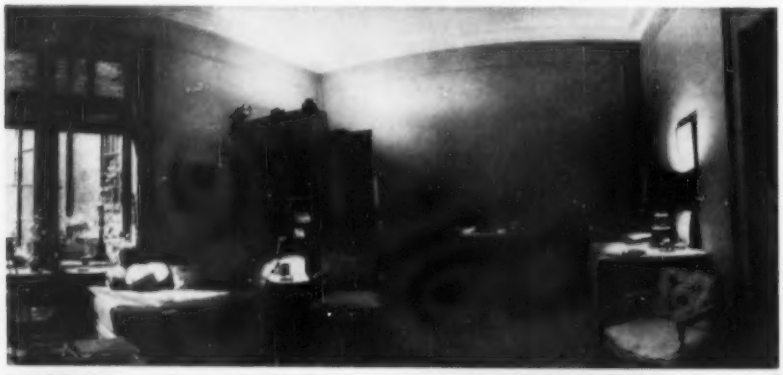
Pagano, Inc., of course, is the largest commercial studio in the United States. Pagano can shoot any studio assignment, including an entire color catalogue.

Ozzie Sweet has done stories for almost all the general national magazines. In his studio are dozens of covers which have appeared on a variety of magazines including POPULAR PHOTOGRAPHY.

Arnold Newman is best known for his portraits which have appeared in *Life, Time, Fortune, Collier's,* and many other magazines. At the moment we interrupted him for a photograph he was carefully shooting an 8x10 close-up of a walnut for a national advertising campaign.

Harriet Arnold is also a portrait photographer specializing in children. Her work has appeared in many leading magazines.

Gerald Hochman's editorial photographs have appeared in *Vogue, Fashion and Travel,* and other of the country's leading magazines. Hochman's advertising accounts include fabrics, cosmetics, perfumes, and both men's and women's fashions.—J. D.



HARRIET ARNOLD. **Daylight:** not a daylight studio. One small window which is easily blacked out with a shade. **Electronic flash:** 3 Strobo Flash II units with battery packs; 4 Mighty Midget units with booster for a-c; 1 Monostrobe. **Tungsten:** most work done with electronic flash; has 8 small photofloods on hand. **Reflecting devices:** large white cardboards. **Meter used:** Weston. **Backgrounds:** 1 eight-foot roll of white paper. **Cameras:** 4 x 5 Deardorff View, Rolleiflex. **Amount of work in color:** 25%. **Outstanding features of studio:** "Because I shoot much of my work on location, I consider my place an 'emergency studio.' Basically it is the living room of my New York apartment. The theory on which the studio is designed is quite simple: photography should be as uncomplicated as possible. All lights are portable; backgrounds simple."

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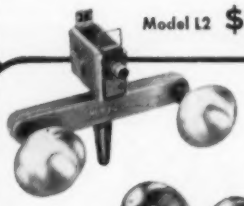

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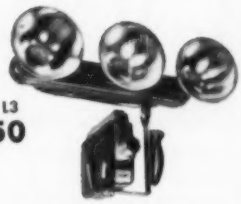

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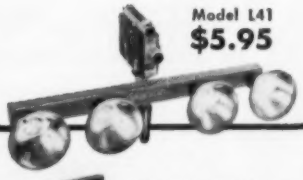

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W. Eugene Smith

(*Continued from page* 49)

floodlight on. Again, all of this must go back, is charged to the man himself, the photographer. He has to be able to bring off a penetrative analysis of his subject, and lighting is but one of the useful tools of interpretation.

Q.—*Speaking of lighting as one of the tools of interpretation, can you pin down concretely what you expect of it, or what it should actually do in a picture?*

A.—The purpose of light, in the photographer's concern, is for a preciseness of clarity—to see, or not to see, as is chosen. Above all, light has to be functional, it has to underscore and intensify the characterization. A picture which has to work against its lighting, where the statement to prevail must overcome the inabilities or mis-statements of its lighting, is not a complete picture. There are many pictures which survive—possibly some of these could be called very good—in spite of deficiencies in lighting, or in the particulars of the other techniques involved. Or, is it that the image compulsion of these photographs is beyond the knowingness of idea, or intent, of the photographer? Perhaps here enters the element of accident which gives some photographers one time glory. But these are never complete pictures; these, no matter how powerful, have failed to varying extents—do not say all that could be wished, or is possible.

But worse is, that so few, truly, fully try, in photography I mean—and "try" is not necessarily of exposures made, of hours spent, of sweat expended, or weights carried; nor of blood-blister complaints against editors and camera clubs. I think standards are too low, frighteningly low—conveniently low, and that many of the slovenlies are drummed as being virtues, or at least, as unavoidable necessities.

Q.—*What do you mean?*

A.—It is impossible, in this short time, to search fairly and give analysis of these ills of photography or of its few but sturdy attributes. Here, let me just touch upon this: photography is still young, it is not yet far enough away from its beginning. I believe that photographers—and this is not the full carcass—are intimidated by the very ease of photography, as well as by its difficulties. By its difficulties, until they have the feeling that, well, since there are so many things almost impossible to overcome, let's just sidle around them, daring nothing, and go ahead anyway, along the accepted paths—some of the biggest names do—and let us rely on its other nature, that quality of easiness. The lack can be explained, virtued, can be rationalized into a pardoning of ourselves from the trouble.

Lighting . . . A print also is of lighting, shaded in grays—a print is the summation. In much of the work I see—ignoring all else—considerable improvement could be gained by the sometimes not simple device of making a good print. By this, I don't mean trick printing to disguise the original, but I do mean a very careful printing and a reforcing of values back

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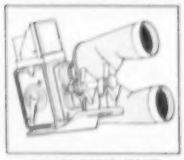

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to the values present when the photograph was made, and with attention paid to an emphasizing of the important, the subduing of the irrelevant. I do not wish to be bothered with pretty, or densitometer negatives, I desire to see the print.

Q.—*You don't insist on a straight print, then?*

A.—No, when they get photographic emulsion to the point of adequacy, where it can handle the light which the world is equipped with, then I would say perhaps straight prints conceivably could be made. But not today. You cannot make straight prints working under the conditions of light as you find it, or improve it, or have to put up with in awkward places. In the studio, of course, you can shade much nearer to easier fractions in value. But out in the world, far from lab tests, and theory's stale tower—am I not supposed to utilize the oft times magnificence of lighting's extremes and inconsistencies? Such as—such as even the bare sun, or its reflective children kicking sharp shafts from any variety of objects straight into my camera lens—these, giving wonderful muscle and command, but overpowering within the same photograph a delicate pattern of infinite counterpoint, no less important. Should I not attempt such as this, if it works for my photograph, even when the range is beyond all possibility of film for recording—and when I print am I supposed not to try to bring this back, forcing the scale back to the reality of vision as of my observations? And, am I never to attempt an intensification of reality, to a vision that lifts photography, as it does all other arts, beyond the mediocrity of dull tediums, and so called records? I doubt if I contradict those few accomplished photographers, master-printers, who advocate the straight approach—when I say that a straight print is a drug store print, or a player-piano interpretation. If so, I know damn well, my answer. For myself, at least.

Q.—*Then you would say that the initial problem of lighting at the moment you take the picture can't be disassociated from what you are going to do when you print it?*

A.—Certainly it is related. It has to be, and I usually see the print as I photograph. Rebalancing can be done—shadows lightened, or highlights darkened—but you can't remake the direction of a shadow or alter a dominant light which adversely cuts a face, forming painful light forms contrary to the good of the photograph. . . . As a matter of fact, that is why, in doing many essays which are an involvement with the intimate actions of people, I dislike using sunlight.

Q.—*Direct sunlight, you mean?*

A.—Yes, direct sunlight, but understand my qualifying of this within a purpose. Here, the reason is, quite simply, that when the light is softer—when there is not such strident contrast of light, the people can move about completely as they wish, and I follow, freed of the light; I can circle to the movement of the people, attentive in sense to the emotionally active compositions, the important statements that arise from the engaged in activity. And there are rich variables, in

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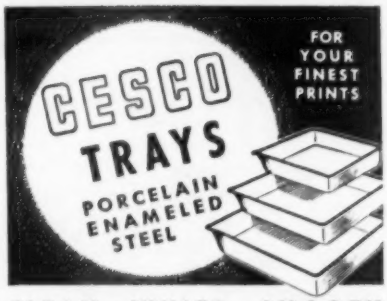

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RAY-VOGUE

this less arrogant light. But with direct sunlight, in this situation, the sun is often quarrelsome to my content and compositional desires, as motivated by these dramas before me—the sun is too brutal a destroyer of shadow areas, here. Again, I suffer the limitations of film against the freedom needed for my search—and I am resentful when the garish is without purpose, and overpowers the fragile, the beautiful, the quivering entrancement of inner living. However, as before indicated, I believe a lighting domination by the sun, intelligently used, can be magnificent. I probably care for it more as strong sidelighting, or as backlighting—but not necessarily. I might be just as pleased with it directly over one of my shoulders—I don't know which shoulder—like the instructions of photography simplified, say—or, I might like to use it directly overhead, or, in any other way—I am fluid to a situation. I think it was Alistaire Cook who wrote an article about traveling across country—and I think I remember one line in which he said that you should tour this country with the sun at your back. Other than it being harder to drive with the sun in your eyes, I don't agree with that at all. The beauties, and even the ugliness—the contours of the country, and of the man-made are so enriched, for me, by the late evening light or the early morning light as experienced when driving into it—there is luxury in those long sidelightings in dance upon the textured contours, with movement of shapes into shadows, and out again into fresh variation—all in a rhythmic play, that will give movement to the dullest lump . . .

Q.—*If you were helping a serious beginner, how would you suggest ways by which he could increase his awareness of light?*

A.—Not without seriousness—that he should drive the countryside, or walk a short block with the sun in his eyes. He can use a sunshade for his eyes, as long as he will continue to look—and to see. Two quite different things—to look, and to see. However, if someone were to ask, "How do I use one flash? . . . where do I put it?" . . . "How do I use two flashbulbs?" . . . the best thing I can think of suggesting that they do would be to take a floodlight and try the practical experiment of seeing. Get a bust, just a head bust—they are not yet ready for the kind that usually make the covers of magazines—one that is neither white nor dark but is neutral in color, and then start with one floodlight. Move it around the room, see what happens, and remember that what they see can also be done with flash. Become aware of distance, become aware of direction, become aware of bounce, become aware of the absence of light, become aware of reflectiveness—by reflectiveness I mean where the main light sets up many counter reflections from around the room onto the subject. Then try two lights, and see how they can be played against each other, bring relationships of every degree in variation of—say, of the background, from white to black—say, of the bust, from white against black, or in silhouette against white. The variations are in-

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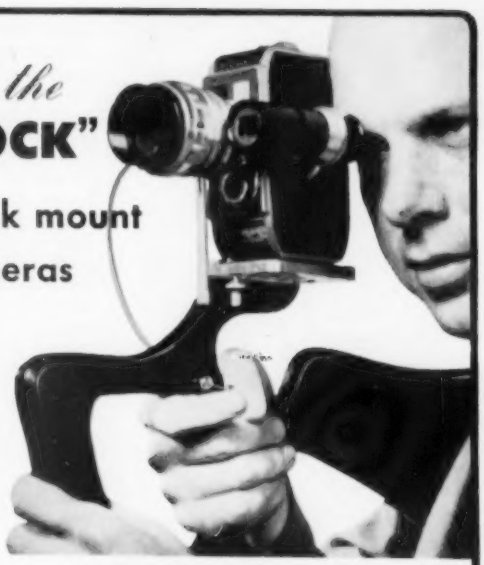

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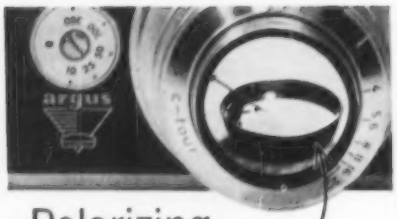

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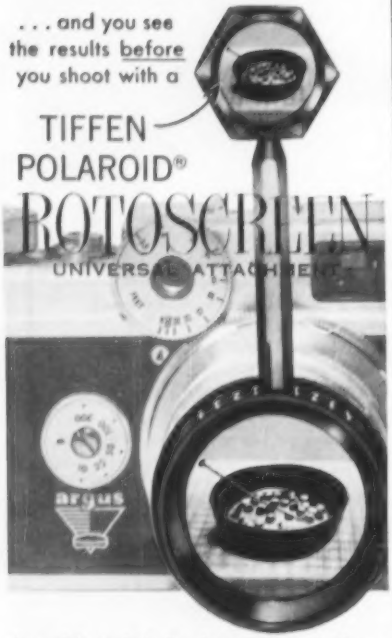

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finite. After this rather practical experiment, they should do this same kind of analyzing in moving through their daily existence. To see, as they were doing when giving themselves the straightforward lesson. Now it should become a straightforward part of their existence. This studying of light is something—one of the things I do constantly—wherever I am. Not necessarily as a discipline, either, but as a sensory pleasure that later I will be able to use. When I was the user of many flashbulbs, I knew precisely how I intended each light to come in, and it was mainly a question of practice, practice, and practice. This does not mean I claim always to have used intelligent lightings . . . I'm not a natural technician, nor a lighting expert. As a matter of fact, I'm rather like the Kentucky mountaineer measuring a distance by sight: he may not know whether it's twelve feet or fifteen feet, or if there is such a thing as a yardstick, but he can look at a cabin he's building and look at a tree and cut it within a fraction of an inch by the measure of his eye—and that is knowledge, not information. It's the same way with light. I know no technical terms of light—I don't know what others call a Rembrandt lighting, and I doubt if he did—or this and such lighting, and although this named kind of knowledge might help you—I am not ridiculing it—the important thing in gaining this usable knowledge is simply to be aware, aware, aware. Let it be made a constant sideplay of practice, just for the sake of light. And this being aware should not be a burden, for it is a wonderful way to pass the time of day, the time of night, or any other time—it interferes with nothing, and it leads to far more than the experience of light.

Q.—*I wonder if you could illustrate that. If you were taking my picture now, sitting here behind this desk, with the light coming in through the window, what sort of running commentary goes through your mind as you're looking at the light?*

A.—The subtleties my mind is aware of—I doubt if I can so quickly conjur them into meaningful words. Well, I feel each slight shift that you make, and with each there is always a ripple of changing values . . . when you lean to that side—too heavy, in highlight on the left cheekbone, on the temple—the eye had lost its catchlight—the balance is wrong, gaining nothing from its wrongness. Now, in leaning forward turning your head, the light has become too flat, has lost its modulations—the catchlight has come back to the eyes—there is little separation with the background . . . I would begin this way, it would be nearly subconscious—subordinate, for I would be concentrating upon you, as individual, as the subject. All now must be made to work simultaneously, for there is but one exposure to each picture. I would be walking about, searching you out, feeling the play of light—talking, and walking, seeing with two visions—one focused sharply to your face, and one that is softly aware of everything behind you. By leaning to this side I see heavy conflicting highlights on that vase

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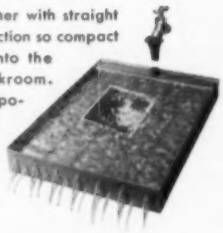

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increase . . . but I could throw it against the dark turn of that wall. However, the other side of your face—the opposite side from the highlight—would be dark, nearly the darkness of the wall and with little separation between your head and it . . . I'd have to bring one or the other up a little, in printing—to get a decent separation, to make these elements work together . . . Now, I have become aware that you are slowly rocking back and forth—as you rock back there is a little jut of white behind your shoulder—that's an immediate annoyance. Well, it would either have to be thrown out of focus to the extent that it is soft in pattern in the background, or hidden, or I'd have to continue juggling these elements, or search from a new direction . . . But, these are so few of the things I must see, the things that must be correlated instantly . . .

Q.—*Do you ever have occasions where the quality of the light itself suggests a picture, where the illumination is so strong or evokes such a definite emotion that the idea for the picture comes out of the lighting itself?*

A.—It often happens—in reward for being aware. One of my better pictures from the Pittsburgh project happened that way. Crossing a bridge I was caught by the light of the late sun striking strong patterns out of a maze of railroad tracks. I stopped, and I played with it, but I wasn't satisfied so I marked the time and place and came back at a later date to have a longer time to work the place with that lighting. Actually, the picture was made weeks later, because the daily weather was not suitable to give me light of the right kind. There were many times, on that Pittsburgh project, when I would mark certain places or themes that I wished to return to when atmosphere and light were working with me . . . say, with just a faint touch of fog in the air to give me separation between a church on the crown of a hill and the factories, the homes behind it. Sometimes the need may be pouring rain, or perhaps a smoke handling wind from the northeast. Sometimes I have seen the place, setting the scene in my mind, and then anticipating the various lightings with the aid of map or compass—returning then, at the time of my projected imagining . . . sometimes, tracing the path of the moon between two branches . . .

Q.—*With the new fast films like Tri-X and improved developing techniques and faster lenses making available-light photography so easy that anybody can do it, do you think this in the long run will help raise the over-all standards of photography?*

A.—No, I don't think it will. Let's say that for the most part they can now make bad pictures even worse under a broader range of conditions by utilizing the "new" techniques. These are wild horses to ride, and the same chance in potential—I know *I* haven't tamed them yet to my complete comfort. If we are ever going to raise the quality of photography it's going to be by instilling a desire and a philosophy and a discipline into the minds of photographers, rather

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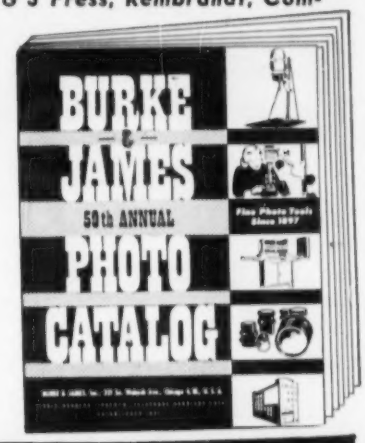

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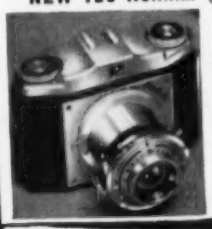

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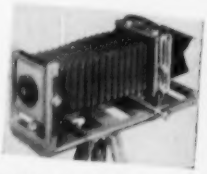

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than from having placed faster films and faster lenses, and developers, in their hands and darkrooms. Very few photographers will take the time or the energy to use, say an f/1.1 lens, with the delicate care within the specifics of purpose, and limitations that these lenses require. Although these lenses are marvelous they, like all photographic equipment, are unequipped with brain. No—often they're only going to make worse pictures, where they might ordinarily have made fairly adequate ones.

Q.—*I wonder if you'd talk about some specific pictures of yours, in terms of lighting. Take the Spanish village set—nearly everybody has seen these pictures, in the museum shows or the magazines . . .*

A.—And I'm delighted when they frequently argue with me that they were photographed in color—it lends support to my present dislike of color in photography.

Q.—*You get that argument?*

A.—Yes—very heavy argument from people insisting it was in color. In fact, the same thing came up the other day when some color of Pittsburgh was brought into a magazine, and the art director—I was not there—turned and said, "You know, there is more color in Gene Smith's black-and-whites of Pittsburgh than you have here." By that he didn't mean glaring, garish colors—these pictures showed brightness and flames enough—but something else. I've noticed quite often that if you use a richness of light and tone—and of course this is a use of light—you achieve the psychological feeling of color without the vulgarization that frequently results from the color materials we have today.

Q.—*Take the death-bed scene from the Spanish village story—how was it lighted?*

A.—Well, there was one candle, burning in a completely dark room. How to solve it? If I exposed for three seconds at f/1.2, I still would have been under, and I couldn't have held—I would have lost the emotional clarity. I very quietly took the reflector off the flash—I think I used flash on but three occasions, during the whole essay—and looking at the light the candle was throwing, feeling the mood of the light, I brought the bare bulb right to the point in front of the candle, and made the photograph—which I knew was going to be a horribly difficult negative to print. It was, too—but is that important? There was a somewhat similar situation with the Schweitzer pictures by the oil lamp. (See page 49) Except here, the oil lamp dominated—was the main light source. I gave a quarter of a second exposure, it may have been a half—hand held, to photograph with its light. In this situation I could have managed with just the oil lamp, because of it being just the one man. But by bouncing my handkerchief-covered Mighty Lite off the dark stained floor, I managed just enough additional light to retain the detail and the soft roundness my eyes saw but which I knew would be lost by the film.

Q.—*Would you say this was a case where the addition of an artificial light*

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gave you a print that was closer to actuality than a straight available-light picture?

A.—Closer to the seeing—closer to the psychological situation of the moment as well.

Q.—*Do you have any preference between conventional flash and speedlight?*

A.—Well, I think the great value—other than its special uses—of speedlight over conventional flash is simply that if you must intrude with the popping of a flash, at least you don't have to clamber over and around people to change bulbs, and this is a great improvement. For it is desirable to have the least possible belaboring of subjects, and the least possible amount of photographer-caused confusion. I think photographers too frequently make themselves obnoxious—shamefully, unnecessarily so, as if unthinking, uncaring for the decent rights, the dignity of those who have fallen subject. Perhaps I am shy, but I am frequently—by amateurs, and professionals—embarrassed for photography, and for human dignity, when I see a calloused, noisy, roughshod, trampling, raking over of the subject's feelings. I think of many news stories, public occasions from the past—however, I am again reminded of this having just watched—and photographed—during a two-day session on the piers where the survivors of the Andrea Doria were being landed, in all the chaotic conflicts of that ruptured world. I would rather mingle quietly, letting the world happen, in its honest complexity—photographing as the nearly unobserved observer, or, as in several of my essays, to become an intimately accepted participant. But there, the way it was on those piers—though it be news, fast breaking, I void this as excuse. No editor's call or threat, nor could my needs coerce me to do such as throw body blocks to hold harrowed mothers with their tiny children, or to physically harass children lost from parents, or to harass any others of the distressed, the grief stricken—to grab, to shove, to hold them as bewildered subject prisoners; shouting, shoving for this fake situation, or that cliché, demeaning the tragic, defiling the dignity and the feelings—photographer-reporter teams wearing unwarranted arm bands of mercy, masquerading in this lie, to gain access to the heart core of the working areas of the officialdom of aid—a final working area rightfully barricaded to the press. No constructive purpose is served for news is not necessarily constructive—remember, such as the Weinberger kidnaping, Grace Kelly?—clobbering the tragic, the pictures often without semblance of honesty, without merits as pictures; what purpose, what value these pictures, are they no more than sucklings from human tragedy, for passing on for the consumption of the morbid feasters? I accept the reporting of tragedy, I admire truly great news photography—the kind almost never picked by the Pulitzer committee—but I wish the press would not abuse their power, or needlessly bruise the already bruised. In such a situation, I could not bring myself to use flash, or strobe, or the flying tackle—in such a situation, where the popping

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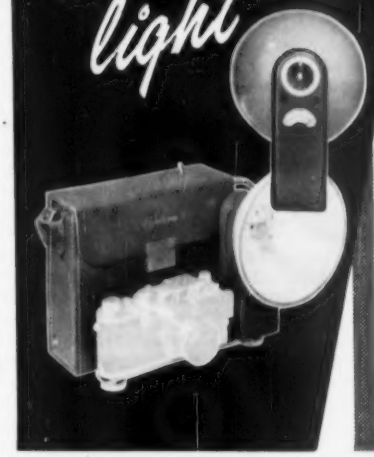

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of lights in the eyes of the dazed, the shocked, the near hysterical is an aggravation to serious problems—here, then, I will say, if there must be photographs, here, in decency, is the one irrevocably right time and place to use discretion in a broad sense and available light in the narrow sense—in that if there is not sufficient light already present, and if the whole level can not be gently raised, then put away the cameras, for neither humanity nor photography is thus served.—▶

Speedlight, by Ralph Morse

(*Continued from page* 58)

of electronic flash. Poor sports pictures are produced by photographers who usually don't understand their equipment.

(When talking about electronic flash most people think of a single unit on the side of a camera. When I talk about it, I'm referring to a much more complicated setup. One in which flashtubes themselves are almost a foot long, and the units hooked together can light Madison Square Garden for color.)

Now, why should I use electronic flash at all? Here's my reason: because it will give me pictures different from the other guy's.

We are living in an age of great competition. When I go out and cover an assignment, there's usually a cameraman shooting over my shoulder, and at that moment sending a picture out to the country's television sets. There's also a photographer who will have pictures in the next edition of his newspaper. I'm competing against both these men, and in order to win, I've got to produce different, and better, pictures. Electronic flash will help me do this often. This is my reason for using it.

There is also another type of competition. Hundreds of photographers and news events are competing for limited amount of pages in *Life* magazine. Only the most interesting pictures will make the magazine.

To make a picture that looks different sometimes takes all the tons of electronic-flash equipment that *Life* owns. Sometimes a setup takes three days or more. Hundreds of feet of wire and cables must be laid. Flashlamps must be carefully positioned. Sometimes special electrical outlets must be brought into the shooting area. Finally, tests must be made whenever possible.

Although an electronic-flash meter will give you an exposure, it is always better to have a test shot to look at. A meter won't tell you if a light is hitting in the right direction, but a test will.

Good electronic-flash sports pictures require hard work. They also require team work. The photographer has to act as a foreman and instruct condenser-carrying helpers where to position and how to set up units. (Condensers vary in weight from 40 to 80 pounds and sometimes you have up to 32 condensers on a job.) Many times I have found myself in the middle of a field shouting to assistants a few hundred feet away on how to position lights. But all the work is worth it when you come off with a different sports picture.

Before I go on, let me give my formula for a good picture: 25 per cent equipment; 25 per cent thinking and common sense; and 50 per cent willingness to make a better picture than the next guy.

The first part of this formula is the easiest part. Learning to use electronic flash—even the largest units—is like learning to drive. Anyone can do it. I can teach anyone to use a camera in an hour, and teach them how to hook up all *Life's* electronic-flash equipment in a day. But, to teach a person where to set up lights and when to use the equipment takes a long time and a lot of practice.

In sports photography it is easy to stop action, but to stop action and make it look different and mean something is another story.

If I should go into the case histories of some of my best electronic sports pictures, it might discourage a lot of photographers from using it. For instance, there is the picture on pages 82-83 of this issue which took a year to get.

I got the idea to get the start, middle, and finish of a 60-yard dash a week before the annual Melrose Games at New York's Madison Square Garden. We started setting up a day before the meet. We shot tests carefully because we knew we had but one chance to make the picture. One exposure—that was it—no more.

The next day, when the chips were down, we shot the event. One electronic-flash unit did not fire and we missed our picture. For a year we waited for the event to come around again and we went out to shoot it. This time everything worked.

One time I was assigned the job of shooting night fishing. The location was a sandy beach out in the middle of nowhere. There was no plug handy to hook the electronic-flash units into, and plenty of light was necessary because waves were breaking 30 yards out in front of the fisherman we were going to shoot. Our picture had to get a close relationship between the man and the crashing ocean.

We rented a huge gasoline generator to power all our flash units, set some up on a boat and used a telephoto lens to pull the fisherman and ocean together. We worked all night to get the shot. But when it appeared in the magazine it looked as if it could have been done with a box camera and flashbulb. Little did our readers know what we went through for it.

I have used electronic flash to shoot track and field, auto racing, boxing, hockey, fishing, handball, squash, night baseball, basketball and swimming. I used it because I had to use it. The picture I had in my imagination required a certain type of light in a certain position. Electronic flash filled the bill. It was to me what a wrench was to an auto mechanic. We both need our tools to help us get a job done.

To summarize, I'd like to say that today in the highly competitive field of photojournalism, it is important that a photographer be able to use *all* the tools of his trade. One of these tools is electronic

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flash. It is a complicated but wonderful light. In the right hands it can get exciting sports photographs. The units alone, however, don't mean anything. They must synchronize to the photograph that's in a man's imagination.—

Available Light

by Dick Meek

(*Continued from page* 59)

It's getting easier to stop action under lighting conditions that were once considered impossible. Against the argument that shooting with a slow shutter produces some blur in an available-light picture, I'd like to say that some blur is an asset. It helps get across the idea that the subject was in motion at the time of the exposure. How often have we seen an electronic-flash picture that shows someone in mid-air but does not convey the feeling that the subject was in motion?

This brings up another point—climax. (Before I go on let me define *climax*. It is *not* peak of action. It is the most important moment in a play. Sometimes climax and peak of action coincide as in pole vaulting, but usually both are separate. Take the double play in baseball for instance. The peak of action occurs when the second baseman is in the air and throwing to first base. The climax might be the first baseman dropping the ball or just before the second baseman throws.)

The electronic-flash photographer is always primed for the climax. If he should shoot slightly before, he's out of luck. His units won't recharge fast enough to allow him a quick second shot. The available-light photographer can jump the gun, and still get the climax with another shot.

I don't like to think of the available-light photographer as one who is constantly surrounded by the limitations of light. I feel most limitations in this area of photography are found in the photographer's imagination and not in the source of light.

The toughest problem for the available-light man is having to shoot under extremely low light levels. Offhand, I can think of two ways I could solve this problem.

First, I'd shoot my subjects against the light and get silhouettes. Second, I would augment my available light with floods, placing them so I would not lose any of the realism in a situation.

I can recall one assignment when the first method I mentioned got me a cover on *Sports Illustrated*.

I had spent the day shooting color on horse racing. Before I was finished, the sun started sinking and the last race was still to be run. As I started to think about my problem the horses began parading toward the gate. I quickly decided I was going to get my last pictures with the existing light. Getting down low, I shot the horses against the sunset. The editors liked it and put it on the cover.

If I'd given up and turned to electronic flash, I probably would have gotten a few mediocre racing shots.

Given the choice, I would rather use bounce flood than bounce speedlight. I

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feel floodlight can be controlled easily both as to quality and quantity. Electronic flash is less flexible. Most speedlight setups require test shots so the photographer can see how his light is falling. When you don't have time for tests, electronic flash is dangerous.

Speedlight has a shortcoming which does not occur in available light—ghost images. (A ghost image is caused when electronic flash gives one image and the existing light plus the shutter speed gives another image. Both are recorded off-register in a picture.) If you're shooting electronic flash and the available-light level is higher than that of the flash, you are going to have ghost image trouble.

Now, let's consider candids. Often an assignment calls for getting shots of players, managers, and others in locker rooms and other off the field places. Available light is ideal for this type of shooting. There is no flash to announce every shot you make. People don't notice you with your available-light camera.

Right here I would like to say something about the amateur photographer. As far as sports work is concerned, I envy him. In his home town he has all the freedom in the world under which he can produce spectacular sports pictures. He can just about lie on second base, or jump right into a football huddle for close-ups. Because professionals like myself shoot mainly big league events, we are faced with dozens of restrictions placed on us by fans and athletic officials. Using available light, the amateur needs only imagination and a camera to get good sports pictures.

In summing up, I would like to say this: I believe all photography should be approached emotionally and not mechanically. With electronic flash, photography is governed by rules of arithmetic. Available light gives the photographer freedom in which to get a picture as he feels it without being a porter who has to cart around tons of equipment. Available-light photography is a real challenge, and I welcome this challenge.—

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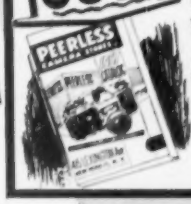

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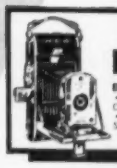

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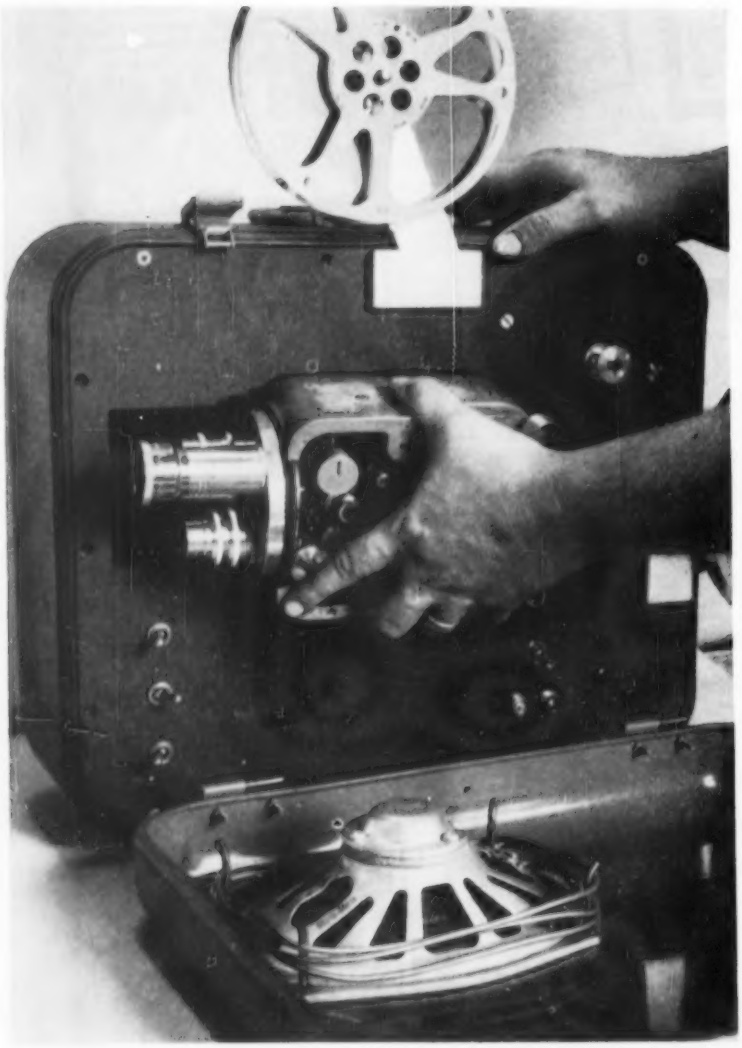


Dream unit, a camera-projector combination, is the goal of the manufacturers of the new Cinephonic sound camera. The hand-engineered model (above) shows the sound camera being placed into the projector case so that it becomes the basic projection mechanism for showing sound films which were originally made with the sound camera.

• *Although the Cinephonic movie-sound camera is aimed at the professional market, we feel it is an important product, which has a definite meaning for the amateur movie-maker. In the near future, amateurs may have a unique motion-picture sound system based on all that has been learned from experimentation and production of this camera. We feel that this article will give most amateurs an important insight into a startling new sound-picture idea.*—The editors.

•

Everybody familiar with motion picture cameras and tape recorders probably has shared the same thought at one time or another—that the two teamed in a single, compact unit would make an ideal sound-movie system.

This has now been done.

Magnetic Sound Camera Corp. of Chicago is presently manufacturing the 16-mm Cinephonic camera, a sound-movie unit. Whether its sound system is ideal for you depends on what you want to do, how you like to work, and how much you want to pay. The basic professional unit carries a $1,975 price tag and is now being used for television news work. The company's future plans include an amateur outfit in the $400-$500 price bracket and, still farther off, a combination, camera-projector "dream unit" which takes sound pictures and shows them with the same basic equipment. The camera that takes the picture and sound will be inserted into a projector framework and used as the basic unit for projecting the resulting sound film. Such a unit is now a working model.

The "dream unit" takes sound movies on 16-mm film pre-striped with tape. It contains three sound heads—for magnetic recording, magnetic play-back, and optical play-back. For conversion to use as a projector, the camera is pressed into a projector case containing an amplifier, projection lamp and reflector system, and a fan for cooling.

As the camera unit is seated in the projector case, plug-in contacts automatically convert the camera amplifier circuit to make it serve as a pre-amplifier for picking up sound from optical or magnetic sound track and delivering it to the larger amplifier in the case. Mechanical

CAMERA

the future

By ROBERT L. McINTYRE

contacts open a door in the right side of the camera to reflect light through the camera's optical system. Mechanical linkage connects a drive shaft from a motor in the case with the camera's film transport mechanism. A second shutter, rotating on a different radius, is activated. Switches on the projector unit panel provide the fan, motor, lamp, volume, and tone control, and there is a selector for choosing magnetic or optical sound play-back.

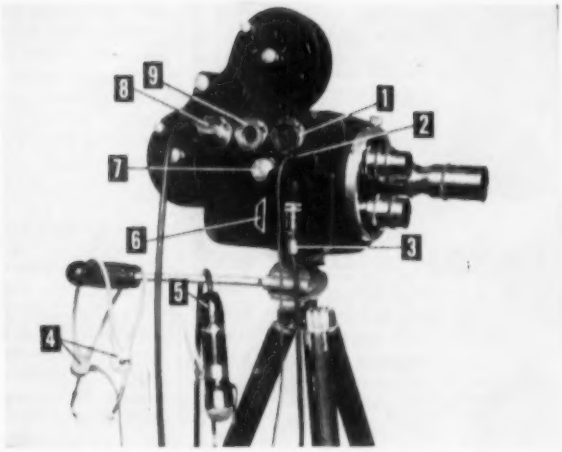
When can you buy one and what will it cost? The manufacturer refuses to be pinned down. The plan is to go along with the professional-type magnetic unit now in use and follow-up with an amateur unit to be basically similar but simplified to reduce cost. Second on the priority list is the "dream" camera-projector outfit. The present hand-made prototype will undoubtedly be made obsolete by new developments in the field, so even we can't guess what may be possible by the time it reaches the market.

The Cinephonic professional unit now available is a first, but a first that has to be carefully defined. It is the first self-contained, single-system, magnetic sound recording camera. While magnetic sound is employed regularly in double-system recording, it needs a separate machine to record the sound in synchronization with the camera. Later on, this sound tape is added to the film. There are also magnetic recording cameras with external amplifiers and sound controls. The Cinephonic eliminates all of this by putting everything in one "package"—a complete sound camera that can be used hand-held. One man can operate it, checking the sound through a pair of headphones as he watches the action (and a recording level needle) in the viewfinder.

The camera mechanism itself is built to operate at 24 frames per second. It is driven by a 1/1000 h.p. motor, powered by ordinary line current where it is available or by a 117-volt, 60-cycle ac wet cell battery pack weighing about 4 pounds. The portable power supply will expose 1,800 feet of film before requiring recharging with the built-in charger.

The three-lens turret is designed to take movie lenses in standard C mounts. Revolving the viewfinder eyepiece alters its field of view to match 1- to

(*Continued on page* 132)



Controls grouped on the camera's right side enable the operator to control the sound level while shooting. **1** Balanced 500-ohm line output. **2** Headphone plug-in receptacle. **3** Power cord to line voltage or portable power supply. **4** Headphones. **5** Microphone. **6** Three-position switch: Off, Operate, Monitor. **7** Volume control. **8** Low-impedance microphone input. **9** High-impedance bridge input.

While viewing scene through the viewfinder, cameraman can also keep a check on sound level of dialogue or his own narration. Meter needle (left) fluctuates as sound level increases or decreases and a red panel (lower right) is danger area, indicating too much volume.

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30 DAY MONEY BACK GUARANTEE

Have you shot a TELEVISION ADVENTURE FILM?

Here's what the producer and the film editor look for in selecting amateur films for the ABC-TV television series, Bold Journey

By ART FOLEY, ABC-TV, New York

DO YOU have a 16-mm motion picture story that tells of an exciting and unusual trip, or adventure, that you have had either here, or abroad?

You may have a television show in your closet. Films made by amateur-photographer adventurers are featured every week on ABC-TV's new true-life adventure series, *Bold Journey*, seen *Mondays* (7:30-8 p.m., EDT).

The man who selects the films that will be featured in the series is producer Julian Lesser. Annually he screens thousands of feet of amateur footage in search of the select few that will be televised.

To meet Lesser's high requirements a potential *Bold Journey* feature must be a well-told story characterized by consistently good motion-picture technique. It is seldom, Lesser says, that he will sacrifice good quality for even the most spectacular story or action.

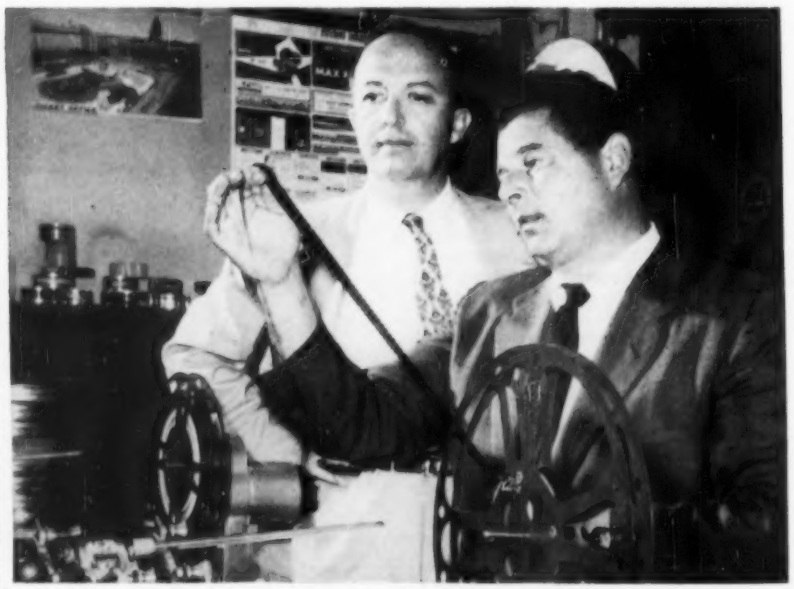
While emphasizing that the adventures, or trips, have to be exciting and unusual, Lesser points out that they don't have to be the climbing-of-K-2 type. Lesser's ideal adventure story is one that the televiewer can watch with interest and become part of in his own living room.

All films must be 16- or 35-mm, either black-and-white or color. They must be shot at 24 frames per second, the speed that films for television transmission are projected.

There should be at least forty minutes of footage, which will allow for editing down to about twenty minutes of film for the program. Critical editing is necessary because of interest of the various subjects and the television industry's standards of acceptability and continuity.

In discussing the technique behind the films that have been selected for televising, Lesser gave three pointers for better films. One, get a variety of angles. Two, if you must pan, do it slowly. Three, use a tripod whenever possible. Lesser tapped

(*Continued on page* 136)



Julian Lesser, (right) producer of *Bold Journey*, inspects footage being considered for use on the new, true-adventure show. Behind Lesser is the show's chief film cutter, Bud Small.

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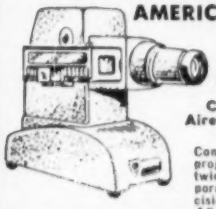

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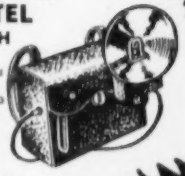

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WHAT'S WRONG WITH MY 35-MM PICTURE?

A department of print criticism for amateurs by the editors of POPULAR PHOTOGRAPHY

Ernest Nielsen, Cranston, R. I. Here is a picturesque marine setting, but this picture is dull and static because too much space is wasted on foreground, and there is no real center of interest. Different shooting angle would avoid this. Cloud filter would also help.

Nikon, 1/200 second, f/8, Plus-X

Wayne Porter, Waco, Texas. With a little thought about format, this shot would probably have been made vertically rather than horizontally. Cropping (right) helps, but if the camera had been turned to vertical, the whole figure could have been included. There is no excuse for wasting picture area when it can be avoided easily, as here.

Retina, Tri-X, 1/60, f/4

→

Cesare Albani, Milan, Italy. This is a well-composed picture, but it suffers from lack of detail in the boy's figure, so that his pose is unclear and disturbing. With foreground light totally lacking, fill-in flash or a reflector might have been used to bring out some detail.

Retina, Pantura, 1/50, f/11

←

→

E. Hunter, Ft. Benning, Ga. Here is another lighting problem: the sun is too strong and directional, causing unfortunate shadows in what is otherwise a charming picture. It is just as simple to set up such situations in open shade, or to block off sun by a tree or building.

Exakta, Plus-X, 1/25, f/4

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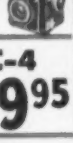

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flashgun 8.50

Case 9.50 1.25 post

FR SPEED FLASH

60 watt-sec

Latest AC model, batteries too. Reg $84.95

LIKE NEW **39.50**

1.50 post

AMAZING SPECIAL PURCHASE, SAVE

90mm f6.8 COATED

LEITMEYR WIDE ANGLE

COMPUR-RAPID SYNCHRO

1 Sec to 1/400th. For all 4x5 and 3¼x4¼ press-cameras. Terrific value. Regular $49.50. BRAND-NEW.

Lensboard mounting (Specify Camera) ..... $2.50 85c post & ins

EXAKTA VX

f2 coated ZEISS preset Discontinued model Sync. reg. 336.00

BRAND NEW **199.00**

case 6.95 1.50 post

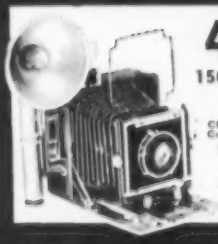
GENUINE IMAGE PRISM

RANGEFINDER

Larger eyepiece for viewing. Reg. $85.00.

BRAND NEW **37.50**

case 2.50 50c post



4x5 B & J

150mm (6") f4.5 Coated Steinheil Unofokal

CPLD Rangefinder . . . flashgun Compur Synchro press shutter. Value $219.00

BRAND-NEW **147.95**

Case 9.95 1.80 post & ins

Same with 135mm f4.5 ctd. Steinheil 139.50

CONTAFLEX

f2.8 coated TESSAR

Eye-level prism RF. Sync. Reg $169.50

Used **79.50**

case 9.90 1.25 post

10% DOWN BUYS ALL CONVENIENT PAYMENTS

Pay the balance in convenient easy budget payments. Select camera, include note giving: age, occupation, 3 references. All subject prior sale. Add postage and insurance.

New Exclusive Purchase Plan

Choose YOUR camera in the condition YOU desire. Column A-1 is used but LIKE-NEW CREAM-PUFF CONDITION. B-1 is definitely used. YOUR CHOICE!

35mm CAMERAS

	NEW	A-1	B-1
Alpha 7, f1.8 ctd	459.00	322.50	285.00
Argus C-4, f2.8 CRF, M-X	84.50	55.50	42.50
Bolsey B22, ctd f3.2	69.50	39.95	28.75
Bolsey B, f3.2 coated	54.00	22.50	19.95
Bolsey C, f3.2 ctd, Sync	89.50	46.30	38.00
Canon IV, f1.8	284.00	189.50	121.50
Contax II, f2 Sonnar	.....	107.75	64.00
Contessa, f2.8 coated	159.50	84.95	65.95
Contaflex II, ctd f2.8 Tessar	199.50	157.50	109.00
Contax IIIA, f2 ctd Sonnar	366.00	174.00	133.50
Contax IIIA, f1.5 ctd Sonnar	412.00	212.00	172.50
Contax D, f2 Biotar	292.00	.....	84.50
Exa, f2.9 coated	84.00	47.00	34.75
Exakta VX, f2 Auto Biotar	392.00	259.00	223.95
Exakta V, f2 Biotar	.....	144.00	118.50
Exakta VX, f2.8 Auto Westanar	239.00	174.00	136.95
Graflex Ciro, 35, f3.5	59.00	39.50	32.50
Kodak Signet, f3.5	75.00	49.00	36.50
Kodak 35, f4.5	.....	19.95	16.50
Kodak Bantam 828, f4.5	57.50	26.50	22.50
Kodak Retina II, f2 CRF	.....	62.00	49.50
Kodak Retina IIA, f2	149.50	98.50	63.50
Kodak Retina IIC, f2.8	135.00	104.50	87.00
Kodak Retina IIIC	190.00	137.50	109.50
Leica IIIA, f2 Summar	.....	98.00	78.50
Leica IIIF, f1.5 Summarit	358.00	229.00	170.00
Leica IIIC, f2 Summitar	.....	154.50	95.50
Leica IIIF, f2 Summicron	336.00	202.00	164.00
Minox II, f3.5 coated	.....	.....	48.95
Nikon S-1, f2	299.50	188.00	149.50
Voigt Vito III, f2 M-X	119.50	83.50	69.50
Voigt Prominent, f2 coated	220.00	164.95	119.50
Voigt Vifessa, ctd f2, sync	127.59	98.00	71.75

2¼x2¼ REFLEX

Ciroflex D, f3.5 ctd, sync	85.50	47.75	29.75
Ciroflex C, f3.5, sync	75.00	49.50	36.50
Ciroflex E, f3.5, sync	99.50	64.00	38.00
Flexaretti, f3.5	89.50	54.50	32.50
Graflex 22, f3.5 ctd, sync	93.50	64.00	38.50
Hasselblad, f2.8 Ektar	379.50	239.50	191.50
Ikoflex, f3.5 Tessar, sync	96.00	59.00	52.00
Ikoflex IIA, f3.5 Tessar	126.00	99.50	69.00
Astraflex II, f3.5 coated	285.00	124.50	.....
Mamayaflex Auto, f3.5 ctd	179.95	99.50	79.50
Minolta Autocord, f3.5 ctd, M-X	99.00	67.50	53.00
Primar Reflex, II, f3.5 coated	265.00	.....	119.50
Exakta 66, f2.8 Tessar	319.50	199.00	159.00
Rolleicord IV, f3.5	134.50	78.00	60.00
Rolleicord V, f3.5	134.50	99.00	73.00
Rolleiflex Auto, f3.5 Tess, sync	.....	122.00	99.50
Rolleiflex Auto, f3.5 M-X	229.50	147.00	119.00

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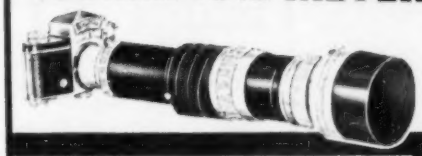
Gives Highest Allowance TRADES

HIGHEST ALLOWANCES FOR YOUR EQUIPMENT

TERRIFIC VALUES

400mm f5.5 MEYER TELE-MEGOR



PRE-SET DIAPH. FOR EXAKTA, PENTACON. Reg 199.50 BRAND-NEW **119.50**

400mm f5.5 TELE-ASTRA PRE-SET DIAPH. (as illus.). BRAND-NEW. **99.50**

For Exakta, Practica, Astra, etc. Hasselblad & other 2¼x2¼ add $30.00.

Lenses shpd. exp.

BRAND NEW 1955 MODEL

EXA VX

Discontinued by Exakta Co.
35mm Single Lens Reflex
f2.9 COATED LENS
WITH WAISTLEVEL AND SPORTS FINDER

BRAND NEW **49.95** 1.25 Postage and Insurance

All features interchangeable with Exakta M-X synchronization. Regular—$85.00. Case 7.95, S.C. Flashgun $5.95.

SLIDE PROJECTORS

	NEW	A-1	B-1
200w LaBelle, case	.....	.....	39.50
200w TDC Headliner, BC	37.50	23.00	.....
300w Argus PB 300, BC	49.50	32.50	19.50
300w Golde Manumatic, BC	56.50	38.00	20.00
300w Golde Reflex (2¼x2¼)	.....	.....	45.00
300w SVE Skyline B, BC	52.45	32.50	24.95
300w Viewlex, BC	67.00	39.50	24.50
300w Brumberger, BC	59.50	.....	34.95
300w TDC Model D, BC	67.50	.....	29.00
300w TDC (2¼x2¼) duo	67.50	42.50	29.00
300w TDC Mainliner BC	59.50	42.50	25.50
500w Ampro, Auto. Case BC	84.50	54.50	41.50
500w LaBelle 55, BC	95.00	58.00	45.00
500w LaBelle 75, BC, case	154.95	.....	90.00
500w Kodaslide Signet	79.50	.....	41.50
500W Revere 888 Auto	144.50	79.50	61.00

PRESS CAMERAS

2¼x3¼ Busch, f4.5, CRF	149.50	105.00	72.50
2¼x3¼ Pacemaker Crown Graphic, f4.5, CRF	347.00	172.50	124.00
4x5 Pace Crown Graphic, 135mm f4.5, Comp Rap Sync, CRF	299.00	127.50	.....
4x5 Am Speed Graphic, f4.5 Ektar, sync, cpld RF	.....	127.00	89.50
4x5 Pace Speed Graphic, f4.7 ctd, synch, CRF	.....	.....	167.50
4x5 B&J Press, f4.5 K.A., Compur Shutter, R.F.	224.00	.....	99.50

MOVIE EQUIPMENT

8mm CAMERAS			
B & H 220 f2.5 ctd	49.95	36.50	20.00
B & H 252 f2.5 coated	.....	.....	27.50
B & H 134 TA f1.9	159.95	109.50	89.50
B & H 172A, f1.9 coated	199.95	134.50	114.00
DeJur Fade-a-matic f2.5	127.50	.....	74.50
Cine Kodak Mag. f1.9 ctd	149.50	99.50	62.50
Cine Kodak Reflant f2.7	.....	.....	52.50
Revere 88 f2.5 coated	74.50	39.50	27.50
Revere B-61, f1.9 coated	137.50	92.50	77.50
Revere B-63, f2.8 coated	142.50	95.00	81.95
8mm PROJECTORS			
500w B & H Monterey 253	79.95	55.00	44.50
500w B & H Regent	159.95	109.00	86.50
750w DeJur	159.50	99.50	69.50
750w Keystone K-109	169.50	99.50	70.50
16mm CAMERAS			
B & H 200 T, f2.5 ctd	174.95	.....	155.00
B & H 70, DA, f1.9	.....	.....	212.00
Cine Kodak Special II, f1.9	995.00	772.00	659.00
Pathe Super 16, f1.9 ctd	499.00	262.95	212.00
16mm PROJECTORS			
750w Bolex G-S-16	353.00	279.90	253.00
750w B & H 273 A	199.95	139.50	120.00

ELECTRONIC FLASH

Astra Port 230w/sec	134.00	.....	77.50
Dormitzer 207 AC	95.00	.....	62.00
Dormitzer DBI	69.95	.....	27.50
Heiland BR-3	82.50	52.00	39.00
Heiland III	135.00	87.50	.....
Heiland V	119.50	.....	67.50

The above listing is published as a fair price guide. Not all items are necessarily available at all times in both A-1 or B-1 condition. ORDER EARLY.

FAMOUS C.W. BINOCULARS

7x50 Central Focusing. With case & Strap

29.95 1.00 post

Add 10% Tax

ARGUS C-3

f3.5 LENS

Complete with case, flashgun, Sync.

Used **34.95** 1.25 post

LEICA IIIF

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S-A-V-E $-$-$

All famous features. Bargain used

139.95 Case 9.50 1.25 post

4x5 DEJUR

5¼ f4.5 ctd LENS

Condenser model, distortion control. Pro features 172.50

109.50 Used ship express

GRAPHIC 35

f3.5 coated LENS

Famous push-pull button focusing

Used **45.00** Reg. 78.95 Case 6.50 1.25 post

LA BELLE 55

800-watt, blower cooled Auto feed. 2x2 (38mm) Regular $1.20.

Used **45.95** 2.20 post

TAPE RECORDER

Revere T-1100, Dual speed. 110 V AC. Regular List $169.50.

Used **87.50** 2.25 post

8mm KEYSTONE BRITEBEAM

800 w lamp, motor rewind, blower cooled. 400-ft. cap.

Used **37.75** Case 5.45 2.00 post

FAMOUS TELE LENS, NEW REDUCED PRICE

1½" f1.4 AMITAR

For 8mm MOVIES

Fits all cameras. Coated, focusing mnt., click stops. Regular $75.00

BRAND-NEW **19.95**

7.5mm f1.4 Wide Angle 34.95

3" f1.9 (16mm tele) 27.50

Case 75¢ post 65¢

THE EXPOSURE METER WITH A MEMORY AMAZING COMPLETE

PHOTO ELECTRIC MINILUX

German-precision-import ASA & Din. Full scale 30 sec. to 1/1000. Incident reflected lite readings.

Reg 11.95 BRAND-NEW **4.95** postage 65¢

FREE Leather case & 10K gold-plated chain with each purchase.

NEWEST LATEST IMPROVED MODEL

ALL ELECTRONIC SLAVE

SLAVEY III

COMPACT UNIT FOR MULTI FLASH WORK

Trigger many flash in unison without connecting wires. Use one 9 battery. Regular $2.00 each (reflector & battery extra). BRAND-NEW **14.95**

3 for 43.50 65¢ ea post

Full instructions, money back guaranty

MAIL THIS COUPON TO-DAY

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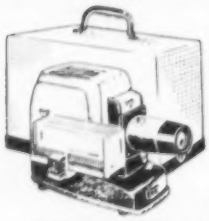
WHERE THE PRICE IS RIGHT . . . *and So's the Service!*

Famous Make
2¼ x 3¼
ENLARGER
List 87.50
52.50

Elgeet 3½" f/4.5 lens. Built-in distortion control. Horizontal or vertical projection. 18 x 25 inch baseboard. 75-watt opal bulb. Brand new.

SVE *Skyline* AUTOMATIC
2x2 SLIDE PROJECTOR



Complete with AIREQUIPT Automatic Slide Changer
And DeLuxe Carrying Case
List 67.45 38.50

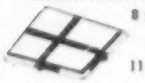
- Brilliant 300-watt illumination
- "Honeycomb" blower-cooled lamphouse
- 5-inch Color-Corrected f/4.5 Lens
- Positive-position tilting device
- Beautiful Sierra-Tan color finish

BRAND NEW! LATEST MODEL!

Famous Make
35mm
ENLARGER
List 74.50
44.95

Elgeet 2" f/4.5 lens. Prints from contact size to 11x14 on baseboard. Aluminum double condensers. Brand new.

ENLARGING EASELS



8 x 10—LIST 5.50 **3.69**
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Steel masking bands. White enamel base.

21.95 EXTENDING ALUMINUM TRIPOD

***Sale* 10.95**

Die-cast aluminum with Nylon gear and leg-locks. When extended, 74 inches; closed, 26 inches. Weighs only 4 lbs.

GRAMERCY 4-LITE Folding Indoor Light

Reg. 17.95
8.95 with case

Price does not include bulbs. 24-gauge steel. UL-approved cord. Luggage type case.

Special Christmas Value! Famous FED-FLASH Camera Outfit

List 11.35
***Now* 4.95**

As anyone who owns one will tell you, "it's a terrific little camera." Complete with flashgun. 8 pictures on #127 film.

MANSFIELD JR SPLICER

List 2.95 1.98

For 8mm and 16mm. With scraper, blade, bottle of cement.

Used 2¼ x 2¼ REFLEX CAMERAS

	WHEN NEW	NOW
KODAK REFLEX II, f/3.5 lens	155.00	42.50
CIRO-FLEX F, f/3.2 lens, sync. shutter	157.50	79.50
AUTO ROLLEIFLEX, f/3.5 Tessar	250.00	79.50
IKOFLEX III, f/2.8 Tessar	299.50	59.50
CIRO-FLEX B, f/3.5, Alphax shutter	76.50	34.50
AUTO ROLLEIFLEX, f/3.5 Tessar; M-X shutter	249.50	139.50
KODAK REFLEX I, f/3.5 lens	137.20	34.50
IKOFLEX IIa, f/3.5 Tessar	164.00	72.50

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Get a Lifetime Guarantee with Every Pair!

SCOPE DE LUXE 9 x 35 BINOCULAR OUTFIT 52.50 Plus 10% Tax

Includes imported SCOPE 9 x 35 binoculars PLUS filter for haze or sun glare; extra eyecups; lens cloth; leather rainguard; comfort pad for neckstrap; leather carrying case. Central focusing. Pearl grey finish. (Exclusive Insurance Protection against loss or damage; only 1.00 extra.)

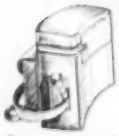
ROWI pocket TRIPODS

No. 583. Tilt top. 10 sections. Closed 8 inches. Open 48 inches. Weighs 15 ounces. **8.75**

No. 591. Tilt top. 8 sections. Closed 10½ inches. Open 55 inches. Weighs 16 ounces. **11.85**

Smart, attractive, lightweight — ideal gift for those who want something different. Fit into pocket or gadget bag.

Less Than ½-Price! Brand New! CONTOUR-CURVED GADGET BAG



List 29.95 **12.95**

10½ x 3⅝ x 7½ inches.

Contour-curved to rest lightly on the hip. Non-slip shoulder pad and adjustable shoulder strap. Top-grain cowhide in beautiful Colorado tan color.

8mm MOVIE CAMERA LENSES

. . . at way below wholesale import cost!

1½" f/1.9 Telephoto Lens for Most 8mm Movie Cameras.....Sale Priced 17.95

Wide Angle f/2.8 Lens for Most 8mm Movie Cameras.....Sale Priced 14.95

Here are real-quality precision made lenses at unheard-of low prices. Now you can increase the scope of your movie camera, and save many dollars.

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Plays the "Wedding March." Holds twelve 8 x 10 prints.

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BLACK and WHITE SUPER XX ROLL FILM
Sizes 120 and 620
10 Rolls 2.29
(Shp. wgt. 10 rolls 3 lbs.)

K-20 AERIAL CAMERA
FREE Carrying Case
64.50
SPECIAL BUY! With 6⅜" f4.5 lens. Perfect for rapid sequence action. Makes 4 x 5 negative. Hand held. Lightweight. Shutter speeds to 1/500 sec.

35mm X 100' FILM
GUARANTEED TO 1957
• Safety
• Plus X
• Super XX
• Infra-Red
• Ansco Supreme
• Background X
1.98 ea. 3 Rolls—4.50
(Shp. wgt.—1 lb. per 100' roll)

E. K. FINE GRAIN POSITIVE
'57 Date. Make your own B-W transparencies!
1.49 3 rolls 4.00
100' Roll .....

FRESH E. K. TRI-X FILM
Dated 1957. ASA 200 35mm X 100'. 2.95 3 rolls 8.25

35mmx36 Exp. Tri-X Cart. 2.49 6 for
12 for 3.95

35mm BULK FILM LOADER
plus 12 empty E. K. cartridges
5.50
With 100' Roll Du-Pont No. 2 (ASA 50) or Kodak Super XX (ASA 100).
6.50
(Shp. wgt. 3 lbs.)

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HALOID 8x10 EE-1
D.W. Semi-Matte
100 Sheet Package 2.95
2 Packages 5.80

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DuPont's Most Popular Enlarging Paper. Single Wt.
100 sheets 2.98
250 sheets 7.00
(100 sheets-4 lbs.)
(250 sheets-9 lbs.)

10x10 ANSCO CYKORA
S. W. Glossy. CONTRAST 3—Excellent Quality
(5 lbs.)
100 sheet box. 3.69

11x14 ANSCO BROVIRA
Glossy D. W. No. 1. Nov. 1956 Dating.
50 sheets. 2.95
100 sheets. 5.50
(Shpg. wgt.—5 lbs. 50 sheets)

70mmx100' KODAK SUPER XX
Here's an Unbeatable Buy!
Per Roll 4.75
Quantity Prices On Request
(Wgt. 3 lbs.)

CUT FILM AND PACKS
4 x 5 CUT FILM
Ansco Triple S Pan (ASA 200) Ansco Triple S Ortho, E. K. Ortho X (ASA 125), and E. K. Infra-Red (for Unusual Effects).
NEW LOW PRICES!
3—25 sheet boxes. 3.50 | 6 boxes. 5.98
(3 boxes 2 lbs.; 6 boxes 4 lbs.)

2¼ x 3¼ Plus X Film Packs.
5 ..3.98 89¢
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(Shp. wgt. 6 oz. ea.)

4 x 5 Haloid Lithoid. Perfect for Copy work.
50 Sheet Box 1.95
2 Boxes.....3.75
(2 lbs. per box)

16mm x 50' ROLLS KODAK SUPER X
12 rolls 3.95 | 28 roll can 8.50 | 2 cans 16.00
(12 rolls 2 lbs.—1 can 5 lbs.)
LOAD YOUR OWN! EMPTY MAGAZINES. 59¢ ea. 12 for 6.00
(1 lb. ea. 12—7 lbs.)

E. K. SUPER X 16mm x 50' MAGS. Free Processing. 2.39 Each
(Wgt. 1 lb. each) 2 for 4.50

8 x 10 ANSCO COLOR
Tungsten 20 sheets. 5.00
(Shp. wgt. 3 lbs.)

KODACHROME 828—TYPE A
ASA16. 8 exposures per roll.
3 rolls. 3.50 | 6 rolls. 6.00
Free Kodak Processing Included.

2 x 2 AND STEREO MOUNTS
100—2x2 (35mm) Mounts. 1.75
300 for 4.50
100—Stereo Mounts 3.75
300 for 10.00
(Shp. wgt.—100 mounts 1 lb.)

4 x 5 BROWN KRAFT NEGATIVE PRESERVERS
Box of 250 ..... 1.29
4 Boxes of 1000 ..... 4.50
(Shp. wgt. 3 lbs. and 8 lbs.)

AERIAL FILM
5½" x 20' E. K. Super XX and Tri X (2 lbs.) 1.19
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3 for 5.50
(Shp. wgt.—3 lbs. ea.; 3—8 lbs.)
5½" x 200' E. K. Tri X '54 date. (10 lbs.) 12.95
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(Quantity Prices on Request)

2 x 2 SVE SLIDE PROJECTOR
Uses big brilliant 300 watt bulb! Equipped with patented SVE rapid slide changer. Excellent condition.
16.95
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(1 box—10 lbs), 2 boxes 8.95
35mm x 100' Kodak AZO S, W, F2 & F3 Per Roll 59c; 3 rolls 1.49
(Shpg. wgt.—1 lb. ea.)
Kodak 11" x 14" Ad-Type, contrast 2 & 3—50 sheet pkg. 1.49
3 pkgs. 3.00
(Shp. wgt. 3 lbs. and 8 lbs.)

8 x 10 DuPont Process Pan
Perfect for making copies 25 Sheet Box 1.98 | 4 Boxes 6.95

HI-SPEED 35mm EK
Day-Aero Ektachrome
27½' Roll 3.95 | 75' Roll 7.50

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Umbrella Reflector

(*Continued from page 67*)

or on any set where the ceiling might be too high or inconvenient for bounce.

They went to Uncle Sam, The Umbrella Man (110 West 45th Street, New York) and he produced a white tightrope walker's umbrella which proved excellent for the job. The latest 16-rib models are made of double white nylon and sell for $22.50, including case. He made several of these with a special aluminum shaft, which our calculations indicated should be as short as possible and still allow the umbrella to close.

The Ascor speedlight unit we use for all types of 35-mm photography comes with a clamp that slips easily over one end of the umbrella shaft and is tightened by a thumb screw. To serve as a link holding the shaft to a Graflex Adjustable Swivel #2081 ($3.95), Marty Forscher of the Professional Camera Repair Service (480 Lexington Avenue, New York) machined a sliding collar ($3.50) to fit. The other end of the swivel is attached to a collapsible light stand. When closed the umbrella and stand measure 26 in. long and weigh four pounds.

EXPOSURE GUIDE FOR UMBRELLA RIG
(Barrett Gallagher worked out this table as a guide to shooting with his particular equipment. Make a series of exposure tests and compile a similar table for your own electronic flash unit and favorite film-developer combination.)

	Kodachrome	Plus-X*
2 umbrellas, 10 ft., 1 head on, 1 on side	f/3.5	f/11
2 umbrellas, 10 ft., both 45°	f/3.2	f/11
1 umbrella, 10 ft., head on	f/2.5	f/11
2 umbrellas, 17 ft., 1 head on, 1 on side	f/2	f/8

(In all cases rig was set-up 7 ft. high.)
* *Developed in Microdol*

The big advantages, in addition to the controlled soft bouncelight, include a standard white reflecting surface and constant exposure. The safest setup—where you want even lighting so you can concentrate on catching action—is two umbrellas placed one on each side of the camera, ten feet from the subject at a 45-degree angle. With Ascor 200 speedlight units, which have a Kodachrome factor of 75, the exposure here would be f/3.2. With one umbrella at ten feet, exposure is f/2.5. Once you have made a few tests with your lights you don't need to worry about exposure.

The weight is convenient, too. The power pack (which has shoulder straps) weighs 12 pounds. You can carry two sets (total weight, 32 pounds) plus a camera case, and have a truly portable system. To make the whole rig more stable, hang the power pack on the light stand.

A look at the accompanying exposure table indicates lens openings ranging from f/2 to f/3.5. Obviously this system is designed for 35-mm cameras. Bigger (and much heavier) electronic-flash units will permit larger cameras with slower lenses, but we get best bounce results with Kodachrome cartridges.—

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Why don't they make a household lamp of about 50 watts with a color temperature of 3800 K so we can use it for viewing subjects without getting image movement or degraded color when shooting with flash?—E. J. B., Dayton, O.

If you are having this kind of problem I think you are using too slow a shutter speed on your camera, or the shutter is not giving you proper exposure. As to why they don't make this kind of lamp, the illuminating engineers tell us that 3400 K is about as high a color temperature as they can get from a photoflood with white glass envelopes. If they increased the current, the filaments, already white hot, would melt. Making lamps with color in the envelope glass is never too satisfactory as the color is not stable and is hard to make uniform. This is why blue photofloods are recommended only as fill lights, never as the main source for color photography.

How to Boost Film Speed

Are any of the newer color films capable of being speeded up by exposing them to vapors as we used to do with black-and-white film?—J.A.P. Jr., Thetford Mines, Quebec.

To my knowledge there is no way of increasing the effective film speed of the new color films that is any easier or better than the technique of increasing the first developer time and cutting down the time in the color developer with the Ektachrome films; with Anscochrome, you increase *both* the first developer and color developer times.

Now, neither of these will give you color as perfect as normal processing, but acceptable color can be obtained quite easily this way. I have seen Anscochrome that has been boosted to an effective speed of 100 which was quite good. Directions and suggestions for doing this are available with the processing kits for either the Ektachrome or Anscochrome.

If you really want to go into this, I repeat the suggestions I have made before. Inasmuch as each emulsion of color film has a peculiarity all its own, if you want to be sure of your results, you will make some experiments first. I buy many rolls of color film of the same emulsion; I store them unopened in my deep freeze until I use them, when I remove them a day or so before use to let them warm up. When I first get a supply of film of one emulsion, I shoot two rolls as a test. Then I take the first roll, cut it in half (or thirds) in the darkroom and develop it as I think it should go. If the results give me the boosted speed I want, fine. If not, I can manipulate the second half of the roll. If the color is slightly off but the speed is good, I will make a test using a corrective filter. For example, if the film is slightly magenta, I may make my next test through a CC10G (green) filter. Then when I get results that satisfy me, I carefully record them and follow through as long as I am shooting that particular emulsion.

There are some very good laboratories that process color for professionals and advanced laboratories that will give you one or two full stops increase in effective film speed, but they all agree that if you send film to them to be processed asking for more speed, it is wise to also send in an extra roll or two shot the same way, but marked "Test Rolls." Perhaps this is a little expensive—but good pictures can't be measured in money, and if you really need results it is often worth while to pay a little more for them.

Improved Conversion Filter

I have just noticed that although Kodak used to recommend an 80A filter for use when Daylight film is used with photofloods, they now recommend a new filter called 80B. Has color-film correction for daylight changed, have photofloods changed, or what?—B. P. P., Sioux City, Iowa.

Well, this is a fine question and the filter, properly called "Photoflood Filter for Kodak Daylight Type Color Films No. 80B," was sneaked in on everyone without much fanfare or announcement. Color films are still made for the same daylight correction as ever, and photoflood lamps still burn the same BUT, here is what happened: the photoflood filter has never been a *recommended* filter—it's a filter you use in an emergency. Kodak found a way to make an improved filter which gave much better results than the old filter, and in addition it has nowhere near as high a filter factor. In fact, the index for exposure is twice what the old one is. Kodak still tells me that this film-filter combination is not recommended for best results and should be used only in emergencies. But the results with the new filter seem to be definitely better than with the old one.

Incidentally, the fact that conversion of Daylight film to photoflood use has never been too satisfactory is one of the reasons why when people ask which film to use—indoor or out—when they want to use only one film—that we always say that the indoor-type film with conversion filter to daylight gives better results.

Questions of general interest to the color photographer will be answered in this department. However, individual replies can not be given for questions that are not used.—Ed.

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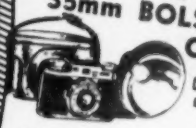

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†8mm mag. (dble)	3.18
†16mm x 100'	5.72
†16mm x 100' Sound	5.72
†16mm mag.	4.93
†35mm x 20 exp.	1.48
†35mm x 36 exp.	2.08
†35mm x 36 exp.	.79
*828 Bantam	5.72
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• Can be hand held

	Reg.	Special
2-Lite	$10.95	$5.95
4-Lite	20.55	8.95

#375 Floods ..... ea. 1.00
When ordered with above.

ADAPT-A-ROLL

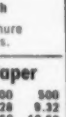
• 620 roll film adapter
• For press cameras 2¼x3¼, 3¼x4¼, 4x5
• Makes 2¼x3¼ & 2¼x2¼ exposures

Special price $23.95

Reg. $29.95
Specify camera size

CUT FILM HOLDER

Standard Double



Fits all Graphics and other cameras with standard press-type spring backs.

	Reg.	SPEC.
2¼x3¼	$ 3.85	$ 2.79
3¼x4¼	3.99	2.89
4x5	4.12	2.99
5x7	4.71	3.39
*8x10	13.00	10.40

Minimum Order — 3
*No Minimum Required

TRIPOD SCREENS

BRAND NEW! FAMOUS MAKE

30" x 40" ... $7.95
40" x 40" ... 9.55
50" x 50" ... 12.90
FREE! Plastic cover.

DeLUXE MODELS For regular & 3-D, b&w, color, still & movie.

	Reg.	Special
40" x 40"	$36.50	$26.50
50" x 50"	45.50	31.75

PRISM BINOCULARS

LOWEST PRICES! BRAND NEW! IMPORTED!

• 1-hand central focus
• Light weight, precision made
• ctd. optics

FREE LEATHER CASE & STRAPS

8x30	$18.75
7x35	21.95
7x50	23.75
10x50	28.50
16x50	30.95
20x50	37.50

Add 10% F.E. Tax

Tripod adapter 3.95

Spotting scope 30 x 60mm, w/table tripod & case.... $23.95 (No tax)

DUOPHOTO PRINT DRYERS

BRAND NEW! LATEST MODELS!

Heavy duty construction

	Size	List	SALE
Black top	14"x18"	19.50	10.95
*Chrome top	16"x15"	25.00	13.50
*Chrome top	16"x20"	45.00	26.95
*Chrome top	22"x25"	67.50	43.95

*Switch permits fast or slow drying

KALART 8mm EDITOR-VIEWER

• Latest model EV-8
• Like new demonstrators • Complete with splicer and viewer.

List $39.50

Only $24.95 Case $3.95

FEDERAL ENLARGERS

BRAND NEW DEMONSTRATORS

COMPLETE WITH LENSES

Model	List	SALE
260	$43.95	$30.80
260CL	57.95	40.60
279	51.95	36.40
135	54.95	38.50
311	75.95	53.70
240	29.95	21.00
450	109.50	76.50

Spectacular SALE of USED ELECTRONIC FLASH

	Reg.	Sale
Dormitzer Synctron 207, w/o batt.	$109.50	$49.50
Dormitzer Synctron 107, w/o batt.	99.50	34.50
Hershey Sun-Lite II, Pock. Pack, w/o batt.	89.50	39.50
Mighty Midget, w/batt. pack		34.50
Braun Hobby, w/batt.	55.50	29.50
Heiland Strobonar III, w/o batt.	181.50	49.50

Above are subject to prior sale

METER TRADE-IN SALE

Look at these big Penn allowances for your old meter toward any of these brand new, latest models . . .

	List	Your Old Meter Plus:
Sixtomat	29.95	16.95
Weston Master III, w/case	32.50	22.45
Norwood Director Colormatic	32.95	22.95
Weston direct reading	16.95	11.45
General Electric PR1	32.95	22.45
Bewi Automatic	29.95	21.50

All metal Carrying Case Complete with 12 trays Reg. $21.75 Only $9.95

For TDC or Viewlex Projector

If you're not on our mailing list, write for Penn's big new catalog.

Penn Camera

Dept. P 1156

126 W. 32nd St., New York 1, N. Y.

Tel. LOngacre 4-2230

MAIL ORDERS filled promptly

Please estimate and add shipping and insurance. We'll refund overpayment. For C.O.D. include 10% deposit. Write for more data on any item in this ad or on anything photographic. Ask about Penn's easy payment plan: 10% down, up to 20 months to pay!

• 15-day money back trial
• 1-year service guarantee

SPOT-O-MATIC ENLARGING METER

Reg. $12.50 SPECIAL $9.45

FLASHBULBS

SAVE $6.85 #5 & #25

Case of 120 Reg. $15.60 (Specify) SPECIAL $8.75

RANGE-FINDER PRISM

BRAND NEW!

For Kine Exakta Eye level viewfinder and auto. split image RF.

Compl. w/extra ground glass and case. orig. list $68 Special Sale $24.95

Range-finder glass only $12.75

TRIPOD SALE

BRAND NEW! FAMOUS MAKES!

"Thunderbird" 3 sec. w/pan head, geared elevator, nylon gears and leg locks. Reg. $19.95. SALE $14.49.

Titall Professional 3 sec., center rise, for press and smaller. Reg. $44.00. SALE $31.50.

Pale Tripod w/panhead. Reg. $21.85. SALE $7.49.

TESTED 35mm RELIABLE

FREE 36 EXP. MICROFILE the film with the finest resolution that is so wonderful for copying, all work requiring the ultimate in detail! With your order for 100 ft. of bulkfilm or $5.50 worth of cartridges (20 or 36 exp.)

ASA 4000? Try the new "miracle" ULTRASPEED film! 35mm DUPONT S-X PAN 20 exp. roll 70c

Nominally rated at ASA 300, good results are obtained at ASA 1,000 and 2,000. Popular Photography's editors report in the August issue of available light shots at ASA 4,000! S-X Pan has unusually fine grain and extreme exposure latitude—truly a film of the future!

20 exp. reload 70c — 3 for $2.00 | 36 exp. reload $1.00 — 3 for $2.75 | 27½ ft. bulk $2.22

FRESH SAFETY KODAK B&W FILM

All four popular speeds, Panatomic X (Background X), Plus X, Super XX and Tri-X are available in 27½ ft., 50 ft. and 100 ft. lengths and 20 and 36 exposure reloads.

27½ ft. $1.20 | 50 ft. $2.20 | 100 ft. $3.90

Shipping charges 10c, 30c, 30c

COMBINATION SPECIAL
Daylight loader with 5 cartridges and 100 ft. of Kodak or 50 ft. of Adox black & white film, a $9.99 value *Shpg. Wt. 4 lbs.* $7.99

BLACK & WHITE RELOADS in metal cartridges may be assorted
20 EXP. 40c ea. 6 for $2.00 | 36 EXP. 60c ea. 4 for $2.00
Shpg. Chgs. 1 or 2 5c; 3 to 6 20c; 7 to 12 35c.

ALL YEAR B&W ASSORT.
Daylight loader with 5 cartridges plus 27½ ft. each of Panatomic X, Plus X, Super XX and Tri-X $10.49

35mm DAYLIGHT LOADER

INCLUDING 5 CARTRIDGES $4.95 IF PURCHASED TOGETHER WITH MINIMUM OF $7.95 WORTH OF BULKFILM

It's so simple to take advantage of the exceedingly low cost of 35mm bulkfilm and to load any desired length into a standard Eastman cartridge. First few reloads already make loader pay for itself. Loader alone with 5 cartridges, $5.95. *Sh. Wt. 4 lbs.*

DELUXE LOADER, with automatic counter, accepts also Leica, Contax cartridges — $10.95 or add $5.00 to Loader comb. offers.

FREE FILM TONGUE CUTTER with your order for $5.00 or more of bulkfilm, or $4.25 worth of bulkfilm plus loader. For perfect shaping of tongue to assure smooth loading. Must be requested at time of purchase

35MM ANSCOCHROME INCLUDING PROCESSING FOR ASA 128

Thanks to Spiratone's exclusive high-speed processing service, you can now take fast COLOR action shots, shoot COLOR in poor light—at speeds higher than were possible with b&w film only a few years back!

ea. $2.50 PPD | 3 for $7.50

HI-SPEED (ASA, 64, 128) PROCESSING of your 20 exp. 35mm Anscochrome—$1.25 (mtg. 25c extra).

Save on fresh 35MM ADOX FILM IN CARTRIDGES AND BULK

Your choice of KB14, KB17, KB21 *Shipping Charge 10c*

20 exposure reload 60c — 3 or more (may be assorted) 50c each
36 exposure reload 85c — 3 or more (may be assorted) 70c each
50 ft. $2.75, 100 ft. $6.00 — *Shpg. Chge. 25c per 50 ft.*

Airequipt 36 slide MAGAZINES with storage box and cover

2 for $3.18 | 12 for $18.95 *Sh. Wts. 2 & 6 lbs.*
12 magazines and Remote Control $33.90 | Remote Control (when bought alone) $19.95
Shipping Weight 2 lbs.

6 AIREQUIPT MAG., in luxurious metal case (holds 12) alone a $7.95 val *Sh. Wt. 8 lbs.* $12.47

SLIDE TRAYS for TDC, VIEWLEX

Changomatic and Projectomatic

LOWEST PRICES EVER! 30¢ ea. lots of 12

Extra strong plastic trays, hold 30 cardboard and glass slides, intermixed, with index. *Shpg. Wts. 3, 7, 22, 50 lbs.*

4 for	12 for	48 for	120 for
$1.95	$4.98	$17.95	$36.00

12 Trays in metal deluxe case, a $13 value $7.95 *Shpg. Wt 8 lbs.*

SLIDE TRAYS for REVERE 553, 555, 888

Sturdy trays, hold 36 cardboard and glass slides, intermixed, with index, in cardboard filing box

2 for $1.69 | 12 in carrying case $8.95 *Shpg. Wts. 2 lbs and 6 lbs.*

REVERE 888 SPECIAL: Remote Control 15 ft. Release plus 12 slide trays in Carry Case $12.49

2 x 2 GLASS SLIDEBINDERS

- Comparable to 6c slidebinders.
- One of the finest methods of mounting transparencies (35mm Argus, Leica size) betw. glass!

2½¢ ea. in Quantities

The biggest bargain in quality slidebinders ever offered. Preglimmed Fibreboard, self-centering of slide, provision for type-on titles, dustproof, lintfree, shockproof—all these advantages are yours for less than the usual cost of glass alone! Why risk fingerprints and scratches on your irreplaceable color shots? 200 for $5.75.
Shipping Weight 5 lbs.

Sample package of 20 2x2 glass and 3 2x2 metal binders, postpaid $1.25

200 single-frame (Mercury) Masks $1.75 / Masks fit glass
200 Square (Robot, Tenax) Masks $1.75 (& metal binders
2x2" cardboard mounts for single frame (Mercury size) transparencies 50 for 55c. *Sh. Wt. per 100, 1 lb.*

800 for $20.95
2400 for $60.00

SAVE UP TO 50% ON 2 x 2 METAL SLIDEBINDERS

The ultimate in simplicity! Aluminum glass binders may be used over and over again. Just place transparency between glass, insert in metal non-warp frame. Sample package of 20, $1.60 ppd.; 100 for $6.50, 600 for $33.50, 1800 for $80.00, 3000 for $120.00. *Shp. Wts. 4, 21½, 60, 100 lbs.* as low as 4¢ ea.

Sale! 40% TO 50% OFF for ARGUS C3 owners

If you own an Argus C3, you can take advantage of the most unusual savings we have ever offered, while supplies last. Shpg. Cost extra

40" Cable Release, our usual 'special' price $1.50	$ .89
3 ft. Coiled Cord, for use of Argus C3 flash as bounce light	1.98
Selftimer, fits cable release socket, reg. $7.95	1.98
Famous make 135mm f:4.5 r-f cpld. telephoto, reg. $49.95	29.95
Aux. coated, Wideangle lens with leather case	8.95
3 Pc. Extension Tube Set, reg. $5.95	2.98
AC Electronic Flashunit, with Coiled Cord, reg. $34.00 complete	19.95
Groundglass Focuser	4.95

SYNCH YOUR OLD CAMERA

- Fully adjustable mechanical tripper, requires no installation, works through standard cable release socket of most old cameras. Has fitting for standard flash cord.
- Allows adjustment for flash bulbs and zero (X) delay for Strobe.

$2.49 PPD.

Tripper with BC Fan Flash, with ejector, tester $6.95

Ship. Wgt. 2 lbs.

Spiratone is Proud to Offer the Widest Selection of

FAN TYPE POCKET FLASH GUNS

All have collapsible fan-type reflectors, making for extreme compactness, without any loss of reflector efficiency! Every model accepts standard bayonet base (No. 5, SM, etc.) bulbs, comes with flashcord for German or ASA bayonet shutters!

'Economy' Model, uses penlite batteries, with ejector $2.99

'Standard BC' Model, similar to Economy, but with popular BC Condensor $3.99

'Deluxe BC' Model, has larger reflector than standard, and bulb-battery tester built-in $4.99

'Super Deluxe BC' Model, has all the features of Deluxe, topgrain leather case, interchangeable cords $5.99

For use of guns on Exakta, Praktica, Leica M3, Argus C3, C4, Realist—add $1.00. Standard flashbracket, fits any gun—$1.00; deluxe adjustable bracket $1.75; BC battery for BC models, lasts year $1.00.
Shipping Charge 35c — Name camera when ordering!

CHANGING BAG

ONE OF THE MOST IMPORTANT "TOOLS" OF ANY PHOTOGRAPHER

Double zippered inner and outer bags, made of the finest cloth, make this bag 100% light proof even in brightest sunlight. Whether for use in an emergency, with a film torn or pulled off the spool in a 35mm camera, or for reloading cut film holders or for developing film when no darkroom is available . . . the changing bag is justly referred to as a "portable darkroom". 17"x16" working space plus elastic sleeves.

All these features at the lowest price a quality changing bag that was ever offered at. *Shipping charge 25c.* $3.95

PROFESSIONAL MODEL: 27"x30" working space, ($11.00 value! *Shipping Charge 50c.* $6.95

TIME EXPOSURE & DELAYED ACTION NOW ADDED TO EVERY CAMERA

NEW 1957 MODEL **SELFTIMER** $2.99

This popular self timer adds to your camera a feature many a photographer has paid a small fortune for. 11 slow speeds from ½ a second to ten seconds! Fits directly into standard cable release socket. *Ship. Cost 10c*

PORTABLE CRYSTAL-BEADED 30x40 TRIPOD SCREEN

LOWEST PRICES EVER $7.69

- Crystal-beaded Pyroxilyn surface.
- Screen raises and lowers on elevating rod, assuring positive alignment.
- Carrying handle sets automatically for balanced carrying.

Despite higher steel prices, Spiratone continues to offer you the biggest bargains in screens ever! Same quality as before, and as praised by thousands of movie and slidefans. Metal can has beautiful scratch-resistant finish. Sturdy tripod is plated and has protective rubber tips. Thousands of these screens are in use, not only by amateurs, but by clubs, churches, colleges as well.

Screen Size		Sh. Wt.
30 x40"	7.69	10 lbs.
40 x40"	9.18	11 lbs.
37 x50"	10.64*	14 lbs.
50 x50"	12.97*	15 lbs.
52 x70"	24.95*	

*Shipped Railway Express

"WIDESCREEN" MOVIE SCREENS: 25x50" $14.95* | 30x40" $19.95*

46 x 46 SILVER TRIPOD SCREEN $12.95

2x2" CARDBOARD MOUNTS

1¢ EA in lots of 100

Sturdy cardboard mounts, ready to use without special equipment, for standard size (Leica, Argus) 35mm transparencies. Fit all projectors and slidechangers. *Sh. Wt. 3 & 6 lbs.*

Trial Package of 100 $1.50 ppd.; 500 for $6.29; 1,000 for $10.

2 x 2" 10 PC. NATIONAL PICTURE SLIDE SETS

50% OFF

Yes, these famous sets of 2 x 2" full color slides of which hundreds of thousands have been sold at $1.00 per 10 are now brought to you at half price! Scenics from all over U. S. and many foreign countries, and children's stories — any eight sets (80 full color 2x2 slides with subject matter imprinted) $4.35 postpaid. Each number contains 10 dif. slides. Choose from these:

4. Block Island	35. Kansas City, Mo.	120, 121. Lisbon, Portugal
5. Around N. Y. City	36. Glacier Nat'l. Park	180, 181. Mexico
9. Times Square to Central Park	61. Madrid, Spain	211. Haifa, Tel Aviv, Israel
13. Bryce Canyon	71. Ireland	C10. Fun at the Fair
14C. Yellowstone	84. Rome, Italy	M1. Three Caballeros
18. Big Bend Nat'l. Park	101. Cairo, Egypt	M2. Snow White
32. Notre Dame Univ.	110, 111. Bombay, India	

2 sets for $1.35 ppd.; 4 sets for $2.50 ppd.; 8 sets for $4.35 ppd.

SAVE $100.00 ON BRAND NEW VOIGHTLANDER 50mm f:1.5 NOKTON FOR LEICA FOR CONTAX $85.00

While our supply lasts you can get this famous ultraspeed lens which normally sells for $185.00 for only $85.00—this is a one time offer, so hurry! Trades accepted.

135mm f:3.5 PRESET TELE $34.95

for Kine Exakta, Praktica, Praktiflex, Contax S, D, DA, Pentacon.

Never before was there a value like this! These famous make lenses are faster than most (you'd usually get an f:4.5, if you pay under $40), have expensive helical focusing, an excellent hard coated, color corrected four element optical system; a pre-set diaphragm; and, because they are 'true' telephoto lenses in design, are short and light in construction!

ULTRASPEED 135mm f:2.8 PRESET TELE $49.95

COMBI OFFER — 135mm f:3.5 preset, plus popular 35mm f:2.5 ctd., color-corr., pre-set wideangle—both for only $89.95

While They Last — Brand New!

135MM f: 3.8 TELE for LEICA, CANON $39.95

Guaranteed the sharpest lens you can buy—regardless of price! Rangefinder-coupled, elegant lightweight mount, depth of field scale—at an unbelievable saving!

For Leica M3, add $10.00. *Shipping Charge 75c*
Deluxe Leather Case $3.00. Matching 135mm Finder $6.95

PRISM RANGE FINDER for EXAKTA VX, VX, EXA $5

Fits all make Pentaprism Finders, without installation, instantly shows correct focus.

PENTAPRISM FINDER replaces waist level finder; shows unreversed, right side up, brilliant image, complete with Prism Range Finder $28.50

Leather Case $1.00 | Plain Ground Glass $1.00

CROSS HAIR SCIENTIFIC GROUND GLASS, for critical parallax focusing, a $16. value, only $2.00, when bought with finder.

Ship. Cost 50c

SYNCH YOUR OLD LEICA, CANON FOR FLASH OR STROBE $3.49 PPD.

No installation—just one quick adjustment over release button and you are all set for flash shots at speeds to 1/30th. Tripper accepts standard flashcord—or buy from us with flashgun to fit accessory clip.

Famous GEISS KONTAKT, synchronizes Leica IIIA, IIIC, cameras even at high speeds, was $19.95 $6.95
Imported Economy Gun w. tripper $6.49; w. Geiss $9.78
Fan-type BC Pocket Flash w. tripper $8.39; w. Geiss $11.79

Shipping Chge. 35c

SAVE 50% BODY, REAR & LENSCAPS SCREW-IN BAYONET

- For Leica, Canon, Kine Exakta, Praktica, Contax S, D, DA, Exa, Contaflex, Contessa.
- All caps precision machined aluminum.

$1.00 ea. 3 (asstd.) $2.80

Shipping Charge 10c

BODY CAPS protect camera body, shutter, when lens is removed. REAR LENS CAPS are a must for all your extra lenses. And FRONT LENS CAPS make perfect seal against any harm to optics, cannot fall off. Available for Sonnar, Biotar, Primoplan, Westanar, Westagon, Tessar, Triotar—be specific when ordering.

Prices on Other Front Caps On Request.

10 FT. CABLE RELEASE $4.49

with setscrew and booster spring

A sturdily constructed German cable for remote control work to operate with any Kodak or Compur type shutter. Imagine the many new possibilities this release opens up for you—whether you photograph wild animals, unsuspecting children at play or take a self-portrait, you'll find this release a valuable accessory. (Leica model add 25c.) *Shipping Cost 25c.*

Other long Cable Releases with setscrew:		Shorter Releases
40" $1.50	60" $2.50	4" 29c 7½" 35c 10" 45c
20 ft. $7.95	40 ft. $12.49	10" w. setscrew $1.25

3 UNIT REFLECTOR OUTFIT $5.79

- Two aluminum 10" reflectors for #1 or #2 bulbs
- One bullet reflector for spot effects

All three complete with swivel joint, switch, socket, clamp and cord . . . at a fraction of their usual cost. *Shipping Weight 7 lbs.*

SUGGESTION: 2 #2, 1 #1 photoflood bulbs 90c.

FREE with $5.79 or $7.89 outfit — RADIOPHOTO 3-EXPOSURE METER w/FLASHMETER

Equally handy for stills and movies, flood and flash, indoors and out. REG. $8.90

HI-LO DIMMER SWITCH $1.98

Compose and focus in comfort, save electricity, prolong bulb life, retain subject's natural expression. Nothing like it under $6.00. When bought alone $2.98.

IF BOUGHT WITH $5.79 or $7.89 OUTFIT

PHOTOFLOOD STAND PLUS TWO REFLECTORS

- 3-section metal stand extends 6'4".
- Sturdy, braced legs with rubber tips.
- Stand telescopes compactly to only 2 feet.
- Positive locking at any desired height.

The ideal indoor lighting setup. 22" crossbar, can also be used to hold screen, backgrounds. Two-spun aluminum 10" reflectors (for #1 or #2 photofloods), complete with sockets, switches, 6' cords, ball socket swivel joints, rubber jawed spring clamps. Can be used on cross bar or furniture. *Shipping Weights: Stand 4 lbs.; Reflectors 6 lbs.*

$13 VALUE $7.89 COMP.

Now with new SWIVEL CROSSBAR

SUGGESTION: 2 #2 photoflood bulbs $ .96
Extra clamp on bullet with bulb (for semi-spot) 1.98
Extra photoflood stand with regular crossbar 3.49

SPIRATONE — The Lens Accessory Specialists

CLOSE-UPS TO 3½" WITH CLOSE-UP LENSES

The perfect accessory that can be used with any camera. You can get close-ups from 3½" to 38". Simple to use, permits a simple camera with a regular 3' setting to take portrait pictures or even do copy work ... now close-ups of insects, flowers and macrophotography, possible with this inexpensive tool.

	Plus 1 from 38" to 20"	Plus 2 from 20" to 13"	Plus 3 from 13" to 10"	Plus 4 from 10" to 8"	Plus 5 to 7"	Plus 6 to 5½"	Plus 10 to 3½"
SER. IV	$1.15	$1.15	$1.15	—	—	—	—
SER. V	1.39	1.39	1.39	$1.75	$1.95	$2.25	$2.65
SER. VI	1.59	1.59	1.59	2.00	2.30	2.75	3.25
SER. VII	2.98	2.98	2.98	3.25	3.75	4.25	5.25

All close-up lenses except Plus 10 are mounted in metal rings
Shipping Charges 10c.

Plus 1 Plus 2 Plus 3 Plus 4 Plus 5 Plus 6 Plus 10

SPIRATONE AUXILIARY TELEPHOTO & WIDE ANGLE LENSES

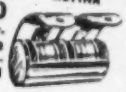
For ANY 35MM, 2¼ x 2¼ or Polaroid Camera

CONTAFLEX ARGUS ROLLEI RETINA POLAROID

EXCLUSIVE FEATURES: Hard S-coating—superb color correction—same exposure and lens opening as usual—no installation—holds filters as illustrated—each lens in an elegant leather case, set in double case—easy-to-follow instructions—interchangeable adapters for use of most models on many different cameras—low prices that save you up to 50%.

Shipping Charge, Ea. Lens 25c; Set 60c

Spiratone TELEPHOTO brings distant subjects closer, permits candid shots, helps fill entire negative areas with important subject matter, crops out unwanted backgrounds.



Spiratone WIDE ANGLE adds coverage in cramped places, gets that extra area into the pictures; wonderful for wide-screen landscape scenes; increases depth-of field, for foreground to infinity sharpness, makes accurate focusing unnecessary!

Auxiliary FINDER, for either telephoto or wide angle. (For 35mm cameras) $3.95 ea. (both for $7.49)

Filters to fit Spiratone lenses, most colors available. $1.00 EA. 3 for $2.49

Accessory Clip easily glued to most cameras 75¢

Accessory Clip for Argus C3 easily installed 1.00

SET OF BOTH LENSES in double-leather case 29.95

EITHER LENS in leather case $16.95

UNIVERSAL ANG CLOSEUP (+1, +2, +3) FINDER, the most versatile finder ever made, matched to your normal 50mm or 44mm lens, telephoto and wideangle Aux. Lenses. Has parallax correction to 10', for use with +1, +2, +3 closeup Lenses, and from three feet to infinity. $9.95

Most Useful Accessory for All Films!

Save up to 60% with Spiratone

POLARIZING FILTERS & SCREENS

With Without

For all Color and black and white film. Eliminate glare and reflections in scenery, water, show-windows ... emphasizes clouds, the ONLY sky filter usable with Kodachrome, Anscochrome, Ektachrome. Polarizing Screens have double threaded rings to allow use of extra filter or close-up lens, handle for convenient adjustment of maximum polarizing effect.

Shipping Charge 10c.

	Polarizing Filter	Polarizing Screen
SER. IV	$1.49	$3.75
SER. V	$1.49	$3.75
SER. VI	$1.98	$4.75
SER. VII	$2.79	$5.75

PRICES SLASHED IN HALF!!

HIGHEST QUALITY OPTICAL GLASS FILTERS

COATED FILTERS IN SERIES SIZES to fit standard filterholders

For B. & W.: Lt. Yellow, Med. Yellow, Green, Red, Orange, Haze.

For ANSCOCHROME DAYLIGHT: UV15, UV16, 82A.

For KODACHROME, EKTACHROME DAYLIGHT: Haze, Skylight, 81A, 82A, 80B, 81B, 80

For ANSCOCHROME, KODACHROME, EKTACHROME TYPE F: 85C, 82A, 82B, 82C.

Coated		Uncoated	
Ser. IV	$1.54	Ser. IV	$1.15
Ser. V	$1.94	Ser. V	$1.39
Ser. VI	$2.44	Ser. VI	$1.59
Ser. VII	$3.34	Ser. VII	$2.98

Sh. Chge 1 to 4 filters 10c

OTHER FILTERS IN SERIES SIZES

Neutral Density 2X, 4X, 8X, 10X, Haze, #2A, 83, 85B, 81, 81B, Flash 1B, 2B, UV-17, Infra-Red, CC-M10, 85A, #10, #11.

Clip here for this

SPECIAL OFFER

Buy at least five filters and closeup lenses at one time and we will supply COATED filters (in colors listed) at uncoated prices, saving you $5.00 and up on this order alone.

CLOSEUPS ARE SIMPLE

and inexpensive, when you buy your closeup accessories from Spiratone, the only firm specialized in low-cost closeup photography equipment.

GOOSENECK LIGHT ATTACHMENT $5.95

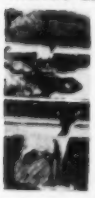
With C clamps, fits copy stand or enlarger pole. 2 bullet reflectors. $1.00 add'l. Sh. Wt. 4 lbs.

DELUXE COPYING STAND

Designed by us for use in conjunction with closeup lenses, extension tubes, bellows attachments, to complete with a moderate investment, your closeup and copying equipment. Strong enough for a 4x5, yet compact in storage (two-piece post) and equally well suited for copying, medical, scientific work and movie titling. Camera bracket permits centering of camera over subject. 15x18" baseboard is very practical for large originals. 1½" diameter pole is 38" high. Shipping Weight 11 lbs.

$12.95

MINUS LENSES GIVE YOUR LENS TELEPHOTO VISION



If your camera is capable of using a bellows or extension tube set, you should thrill to the idea of being able to take telephoto shots without buying a regular expensive telephoto lens ... or you can obtain extreme close-ups in conjunction with your regular telephoto lens. For example, a single Minus 4 lens makes your 135mm telephoto into a 270mm telephoto—varied combinations will produce a variety of effects. Minus Lenses improve the perspective in portraits, too, by lengthening the effective focus length. Minus Lenses are mounted in Metal Rings and are sold in sets of three (of your selection) or four. Available in Minus 1, 2, 3, and 4.

Shipping Charge 10c.

	PER 3	PER 4
SER. V	$3.60	$4.70
SER. VI	$4.35	$5.65
SER. VII	$6.00	$7.90

4-PC. EXTENSION TUBE SET

for Praktica, Praktiflex FX, Contax, S, B, DA, Pentacon $6.95

This exceptionally well-made set includes in addition to the usual 5mm, 15mm and 30mm tubes a 45mm tube, thus permitting up to 2X magnification, when the complete set is used, a tiny object, ½" x ¾" can be made to fill the entire 35mm negative or transparency! Shipping Charge 35c.

4 pc. set, but with one FOCUSING TUBE, alone a $10.00 value, increasing maximum extension to 100mm. $9.95

"About Filters, Closeups and Minus Lenses" is a booklet crammed with valuable info. Send 25c, or free on request with orders of $3.00 or more.

DOUBLE RETAINING RING

Permits use of two closeup lenses (for extreme closeups: +2 and +3 make +5), closeup lens and filter (correction, conversion, pola), two filters, two minus lenses, at same time. Fits standard filterholders.

Ser. C or IV 85c; Ser. V 85c; Ser. VI 95c; Ser. VII $1.50.

FOLDING BELLOWSCOPE

$14.95 with FOLDING BELLOWSCOPE PROXISCOPE SR. a $5.00 value FREE

Available for: Leica, Canon, Kine Exakta, Exa, Praktica, Praktiflex FX, Contax S, B, DA, II (a), III (a), Pentacon, Nikon

The most useful of lens-to-camera closeup accessories. It weighs only 5 oz., has fine leather bellows and a geared track with a positive lock. A sturdy, accurate frame assures proper alignment. An extension range up to 5" is provided, with magnification factors engraved on the track.

Shpg. Chge. 70c

PRO COPY OUTFIT Stand, light att'ms reflectors, Proxiscope Sr., all as illus. $24.99

FREE with orders over $3.00, or send 25c for CLOSE-UP DICTIONARY—contains all needed tables, too

NOTE: All series accessories fit series filterholders. If you do not have a filterholder, write, naming your camera and lens.

A MUST FOR PORTRAITS & LANDSCAPES! DUTO-type DIFFUSERS for all cameras

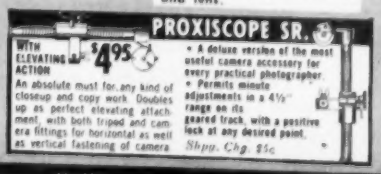
Now available in standard series sizes, to fit all filter holders! Every serious photographer wants to use these famous coated diffusion disks preferred by the world's foremost pictorial photographers for their salon shots. Ser. IV $1.54, Ser. V $1.94, Ser. VI $2.44, Ser. VII $3.34

Sensational Sale in Bayonet Mount PARALLAX CORRECTING CLOSE-UP SET FOR ROLLEI F:3.5 MINOLTA AUTOCORD $2.95 BOTH FOR $5.79

Perfect closeups every time—sets fit cameras without any adapters, are guaranteed to equal $20.00 sets in performance. #1 set focuses from 38" to 20" #2 set from 20" to 13". Sh. Ch. 10c

Coated Bayonet Filters: Red, green, yellow, skylight 80B, 85C $2.98 ea. 3 for $8.49

PROXISCOPE SR.



WITH ELEVATING ACTION $4.95

An absolute must for any kind of closeup and copy work. Doubles up as perfect elevating attachment, with both tripod and camera fittings for horizontal as well as vertical fastening of camera.

- A deluxe version of the most useful camera accessory for every practical photographer
- Permits minute adjustments in a 4½" range on its geared track, with a positive lock at any desired point.

Shpg. Chg. 85c

6-PC. EXTENSION TUBE SET

for Kine Exakta, Exa. This set contains two precision-fitted brass adapters and four tubes, 5mm, 15mm, 30mm and 45mm, providing the greatest possible range of closeup work from a 3.4 reduction to a 2.2 magnification ratio. Shipping Charge 35c.

6 pc. set but with one FOCUSING TUBE from 40mm to 55mm, alone a $10 value. Complete set $11.50 $7.95

All prices include excise tax. Postage and insurance MUST be prepaid, even when no shipping weight is stated — overpayment will be credited in full. Everything listed is brand-new (unless otherwise stated) and fully guaranteed against defects. 25% deposit on C.O.D.'s. Items marked 'Free', 'Premium' or 'Bonus' MUST be requested at time of purchase. Foreign orders welcome — allow for extra handling charges. When ordering accessories, be sure to name your camera, lens, shutter!

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Leica M3 with Summicron f/2 lens		447.00
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Leica M-3 Body		288.00
Leica IF body, built-in flash		70.80
Leica IIF body, built-in flash		120.00
Leica IIIF body, built-in flash self-timer		180.00
Leica IIF with f/3.5 Elmar		178.50
Leica IIIF with f/2 Summicron		336.00
	M-3	Standard
28mm Summaron f/5.6		$105.00
35mm Summaron f/3.5	102.00	105.00
Fuji 35mm f/2 W.A.		179.50
Fuji 50mm f/1.2		209.50
50mm Elmar, ctd. f/3.5	66.00	58.50
50mm Summarit, f/1.5	169.00	186.00
50mm Summicron f/2	159.00	156.00
85mm Summarex, f/1.5, Chrome		260.00
90mm Elmar f/4, Chrome	99.00	96.00
90mm Elmar f/4, Collaps. mj.	136.00	
125mm Hektor, f/2.5		147.00
135mm Hektor, Chrm., f/4.5	141.00	138.00
135mm Hektor sht. mtd.	121.50	121.50
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200mm Telyt f/4.5		165.00
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Multifocus Rangefinder — Tilting and Swinging Back — Revolving Back — Triple Extension Bed — Drop Bed — All Lenses Coupled to Rangefinder — And **NEW UNIVERSAL BACK** and Extalite Screen. (Accepts Polaroid, Graflmatic, and Roll Film Holders.)

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4 x 5	135mm f/3.8 Press Xenar	150mm f/4.5 Xenar	150mm f/5.6 Symmar	90mm f/6.8 Angulon	240mm f/5.5 Tele Xenar	Price
One lens Outfits	✓					$488.40
		✓				$456.40
			✓			$408.00
Two lens Outfits	✓			✓		$544.40
		✓		✓		$514.40
			✓	✓		$573.90
Three lens Outfits	✓			✓	✓	$664.35
		✓		✓	✓	$654.35
			✓	✓	✓	$693.90

F. B Schneider Super Angulon lens

Used as standard w.a. lens			Used as extreme w.a. lens		
Focal in.	Neg. Size	Angle of view	Covers neg. area	Angle of view	Price
47mm	2¼x2¼	84	2¼x3¼	99	$134.50
65mm	2¼x3¼	80	3¼x4¼	98°	$144.50
90mm	4x5	82	5x7	102	$169.50

Goerz Golden Dagor f/6.8

6" (152mm Compur MX	$142.00
8¼" 210mm Compur MX	$179.50
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1956 ROLLEIFLEX AND ROLLEICORD

w. Tessar f/3.5 lens	$232.50
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Case for 2.80	18.00
Case for 3.5	17.00
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2¼" x 2¼" single lens Reflex Camera. Interchangeable roll film magazines, automatic shutter setting. 80mm Ektar f/2.8 or 80mm Zeiss Tessar f/2.8. $378.90

New extreme wide angle Hasselblad w/38mm Biogon f/4.5	$489.50
Finder	49.50
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LENSES:

135mm Zeiss Sonnar lens f/3.5	$278.50
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Zeiss W.A. Distagon f/5.6 with case	$169.50
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300mm f/5.6 Kilar lens	$164.50

BOLEX H-16

Triple turret camera, 100' capacity. Parallax corrected down to 18". Critical groundglass focusing from above camera. With Pan Cinor 70 lens, zooms from 17½ to 70mm, f/2.4 lens $837.50

Pan Cinor lens and case	$449.50
Bolex H 16 Leader, f/1.9	$299.50
Bolex H-8 Leader, f/1.9 lens	$399.50
Bolex H-16 Supreme, f/1.4 Switar	$810.00
Bolex B-8, f/1.9 Lytar lens	$139.00
Bolex C-8, f/2.5 Lytar lens	$ 89.95

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DISCONTINUED MODELS

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Contax D w/f/2.8 preset Tessar	$ 98.95
Contax D w/f/2 preset Zeiss	124.95
Eveready case	12.00

ROLLEICORD IV

with f/3.5 lens, disc. model

$98.50

CONTAX III-A

with X sync. f/2 Sonnar coated lens, built in meter $249.50

Contax II-A X sync. w/f/2 Sonnar $199.00

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35mm Reflex

with Xenon f/1.9 Automatic lens $439.00

- Built in Multifocal viewfinder
- Prism reflex and rangefinder focusing
- Single knob for winding and shutter setting
- Speeds from 1 to 1/1000
- Built in flash and strobe synch.

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40mm Macro-Kilar f/3.5	89.00
135mm Old Delft f/3.2 tele	129.00
180mm Old Delft f/4.5 tele	149.00
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Cinephonic Sound Camera

(*Continued from page* 117)

6-inch lenses, and it can be changed to accommodate lenses within the range from 17½-mm to 4-inches. It is adjustable for parallax from one foot to infinity.

A startling device of the viewfinder is its built-in sound level meter. It contains an indicator to show the operation of the bias oscillator and a needle, on a scale, which reveals the sound recording level. When the needle goes above the maximum gain desirable for recording, it appears against a red background enabling the operator to measure the sound level visually while monitoring it through his headphones. Volume is controlled by turning a knob near the camera switch.

The switch has three positions—off, monitor, and operate. When it is set for monitoring the amplifier is turned on and the volume can be adjusted before the filming starts.

Situated on the right side of the camera are four plug-in receptacles. A small one is for the cameraman's headphones. The others are a low impedance microphone input for the small microphone provided with the unit, a high impedance bridge input for use with other sound sources, and a balanced 500-ohm line output to facilitate monitoring or simultaneous sound recording away from the camera when it may be desirable. Both the microphone inputs can be used at the same time to permit recording commentary along with music or live sound effects, mixing sound from any two sources.

The amplifier is powered by one 6-volt mercury cell, inserted beneath a metal cap at the rear of the camera base. It is good for 70 hours of operation.

Standard equipment for the Cinephonic is a detachable 100-foot film magazine with built-in footage counter. There are also 400-foot magazines available. The magazines are built for easy running and are powered only by the drive supplied as the film is pulled away from the supply spool.

Picture-to-sound spacing is 28 frames, the spacing recently proposed as standard for magnetic recording by the Society of Motion Picture and Television Engineers. The camera design is such that variations from 23 to 29 frames can be supplied on special order. The standard for optical sound is 26 frames. Setting different standards for both systems makes it possible to design combination optical and magnetic sound projectors that will handle either type of recording. Such projectors, with pick-ups two frames apart, could even show both types of sound films intermixed on the same reel.

Several advantages of magnetic sound recording tend to offset this inherent handicap of the single system. Foremost is its quality. On this basis alone, tape is replacing other media for making original recordings for movies, radio, and phonograph records. If you're technically minded, the Cinephonic has a frequency response of 50 to 70,000 decibels. If you're not inclined to figures, this means that it

SAVE UP TO 50%

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7" f2.5 AERO EKTAR

For Exakta, Leica, Contax, Speed Graphic, press and view, all types movie cameras. Custom made adapters available.

BRAND NEW **58.50**

1.75 post. & ins.

Focusing mount for EXAKTA 79.50 and other cameras

4x5 SIMMON OMEGA

With f4.5 lens; accepts 35mm to 5x5 negs; N F model; complete with neg carrier. Gov't surplus, excellent condition.

USED **137.50**

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OUR POLICY

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K-21 AERIAL CAMERA WITH 7" f2.5 AERO EKTAR

The camera that made aerial history. Lens removes easily—adaptable to 35mm press & movie. From surplus.

Case 4.50. **79.50**

Shpg. wt. 55 lbs.

35mm B&H EYEMO

Complete with 2" Bell & Howell lens. Has 100 ft. roll film capacity. All speeds. Gov't cost $200.00. Our special, used

129.50

Shpg. wt. 50 lbs.

8x10 COLD LITE PRINTER

WITH AIR INFLATED PLATEN. All Argon lights. Used from government surplus.

98.50

Shpd. express

ELWOOD S-2 with 6½" lens

35mm to 5x7. Long bellows draw. Tilt and revolve head. Reg. value over $100.00.

BRAND NEW **79.50**

Shpg. wt. 85 lbs.

BULK FILM COMBO

100 feet of fine-grain film with BRAND-NEW cartridge LOADER. Reg. 12.95 value.

5.95

65¢ post. & ins.

GRAFLEX IDENT CAMERA

Complete with 84mm f8 lens; X shutter; Automatic release and film advance. Includes 100' mag. focusing panel & supporting pedestal.

Used **199.50**

Shpg. wt. 50 lbs.

PAPER

CONTACT PAPER

4 x 5 SWGL, 1, f2, f4, 2 gross		3.45
8 x 10 SWSM, 1, 2, 3, 4, 100		1.75

8X10 DW GL 1, 2, 3 — 100 sheets — 3.25

10x10 Ad Type, Lt. Wt. 4, 5, 250		2.00
18x22 LWSM, 1, 2, 3, 4,	50	3.25
20x24 DW GL, 1, 2, 3,	250	39.50
20x24 DW GL, 1, 2, 3,	50	9.50
24x30 LW SM, 1, 2, 3, 4,	125	7.95

ENLARGING PAPER

4 X 5 VARIGAM — SINGLE-WEIGHT, SEMI-MATTE — 250 sheets — **2.95**

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8 X 10 VARIGAM — DOUBLE-WEIGHT, GLOSSY — 100 sheets — **4.95**

8x10 Halobrome, SWSM, 3,	100	2.95
10x10 Varigam, SWSM	250	7.50
10x10 Halobrome, DWSM 1, 2, 3	100	3.69
11x14 Halobrome, SW Lstr., 1, 3, 4	50	3.25

11 X 14 HALOBROME — DOUBLE-WEIGHT, GLOSSY, 1, 2, 3 — 50 sheets **1.75**; 50 sheets 3.75

11x14 Halobrome, DWSM, 1, 2, 3	50	3.50
11x14 Varigam	50	3.75
16x20 Halobrome, SW GL, 2	50	6.25
20x20 Varigam, DW GL	100	19.50
20x24 Varigam, DW GL	10	3.75
20x24 Valour Black, DW GL 2	50	12.50
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30x30 Varigam, DW SM	20	9.95

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30"x30' Kodachrome, DW White Luster	8.95
30"x30' Halobrome, DW GL 2,3	8.95
30"x40' Brovira, SW SM 2, 3	4.95
40"x30' Enlg. SW SM, Resisto 1	4.95
40"x30' Kodachrome, DW SM 1, 2, 3, 4	5.95
40"x30' Kodabromide, DW SM 5	4.95
40"x30' Ansco Brovira, SW SM 2, 3	4.95
40"x30' Ad Type, light weight 2	2.95
40"x100' Varigam, SW SM	15.95

Estimate & include postage Minimum order 2.50

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35mm X 100 ft. KODAK PLUS X or XX — **1.49**

Minimum order 2 rolls.

35mm X 100 ft. Ansco Supreme	1.75
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35mm X 100 ft. Kodak Super XX	1.79
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35mm ANSCO COLOR — 20 EXPOSURE CARTRIDGES. Daylight or Tungsten. Minimum order 5 for 4.45. Each **89¢** 45¢ post.

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2¼ x 3¼ Kodak Plus X or Super Pan Press 3 for **2.85**

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11 x14 Kodak Comm Ortho	12	2.90
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70mm FILM

70mm x 15' Kodak Super XX	10	2.95
70mm x 100' Kodak Super XX	ea.	3.95
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All film and paper guaranteed March 1957 or later. Minimum order $2.50

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Hi-Speed focal plane shutter. Roll film or cut film. Lens alone sells for $215.00. Guaranteed

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16mm RCA SOUND PROJECTOR

Excellent for home, school, church use. 2" f1.6 lens. 10" speaker. Terrific value, used.

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Aero Tessar (Bausch & Lomb). Complete with iris diaphragm. Excellent for studio. Gov't cost $650.00. used

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U. S. A. F. surplus. Complete with GE Calrod heaters & motor. 26" belt & drum.

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Add. 18.50 crtg. chg.

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16 35mm—Develop your own movies. Complete with rigs, reels, etc. Value $167.00.

unused **54.50**

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Big Bertha. Can be adapted to almost all cameras. DALLMEYER with IRIS DIAPHRAGM.

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	Used	—	—	—	347.70	289.00	389.00	289.00	—
LEICA IIIF	NEW	180.00	336.00	357.00	499.00	239.00	289.50	249.00	237.00
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Argus C3, case and flash	66.50	34.95
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Contax IIA with 50mm Zunow F1.1	485.00	375.00
Contax IIA, Sonnar F.2	298.00	184.00
Contax IIA, Sonnar F1.5	318.00	188.00
Contax IIIA with 50mm Zunow F1.1	519.00	399.00
Contax IIIA, Sonnar F1.5	348.00	199.50
Exakta VX with 50mm F1.5 Angenieux	279.50	187.70
Graphic 35 F3.5 Case & Gun	89.75	45.00
Kodak Bantam Special F.2		61.00
Kodak Pony F4.5 synch	75.75	10.75
Kodak Signet, Ektar F3.5 Rfdr	75.00	38.50
Kodak Retina IIA, F.2 Rfdr	127.50	65.50
Kodak Retina IIC, F.2 B MX	106.50	80.00
Kodak Retina IIIC, F.2 Ex. Mat	142.50	105.00
Konica III	129.50	99.50
Leica IIIA, F.2 Rfdr		73.75
Leica IIIC, F.2 Rfdr		93.50
Leica IIIF with 50mm Zunow F1.1	439.50	283.70
Leica IIIF with 50mm F1.2 Fuji	369.50	221.70
Leica IIIF, Elmar F3.5	237.00	122.95
Leica IIIF, F.2	336.00	140.95
Leica M3	288.00	172.50
Leica M3 with 50mm Zunow F1.1	594.50	356.70
Leica M3 with 50mm F1.2 Fuji	479.50	287.70
Minolta A, F3.5	49.95	25.00
Minox III, F.3.5 ctd	119.00	60.95
Minox IIIS, F3.5 synch	139.50	72.95
Nikon S-2 with 50mm Zunow F1.1	495.00	297.00
Nikon S-2 with 50mm F1.4 Nikkor	365.00	219.50
Praktina FX with 58mm Zeiss Biotar F.2	297.50	178.50
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Voigtlander Prominent F.2	220.00	97.50
Voigtlander Prominent F1.5	270.00	134.95
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Voigtlander Vitessa F.2	127.50	69.50
Voigtlander Vito IIA F.3.5	54.50	30.75

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AO 300W, automatic, case	59.50	27.75
AO 500W, automatic, case	74.50	40.50
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LaBelle 75	154.95	89.50
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Revere 555, 500W, case	89.95	56.75
Revere 888, 500 W autom., case	144.50	75.95
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TDC Stereo Projector View	144.50	75.25
Bell & Howell TDC Robomatic	149.50	99.50
Viewlex Project-O-Matic	69.95	42.50

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Graflex B.R.B. 2x3, F4.5		36.00
Graflex B, 3x4, F4.5		30.00
Graflex Super D 3x4, automatic	289.50	96.00
Hasselblad F2.8	379.50	199.50
Rolleiflex Automatic	119.50	69.50
Kodak Chevron, F3.5 Rfdr	198.50	114.50
Kodak Medalist, Ektar F3.5		69.95
Kodak Medalist II, Ektar F3.5		99.50
Mamiyaflex Auto., F3.5 ctd	68.00	
Master Reflex, F3.5 ctd	185.00	66.00
Minolta Autocord, F3.5	99.50	55.75
Polaroid Highlander	69.95	32.00
Polaroid Speedliner 95	89.75	42.50
Polaroid Pathfinder 110	249.50	129.50
Primarflex, Tessar F3.5 ctd		91.00
Ricoflex, F3.5 ctd	29.95	17.50
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Rolleiflex Auto, Xenar F3.5	214.40	71.95
Rolleiflex Standard, Tess. F3.5		48.00
Super Ikonta A, Tess 3.5	99.00	40.00
Super Ikonta B, Tess 2.8	139.00	61.75
Super Ikonta BX, Tess 2.8	163.00	75.95
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Zeiss Ikoflex F3.5	99.00	65.00

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records the very high notes and the very low ones with little distortion. The sound seems better than the customary quality level of 16-mm optical sound films.

Another advantage of magnetic recording is its ability to absorb extremely high volume without correspondingly great distortion. Some types of recordings seem to fall to pieces when the volume gets too high but magnetic takes it in stride.

Still another advantage, peculiar to single-system movies, is the fact that sound track and picture are completely independent of each other as far as quality is concerned. A headache of optical sound recording is its eternal compromise. The ideal sound recording film is black-and-white, fine-grain, and capable of producing maximum definition and contrast. Such films are inherently slow. Yet the ideal film for pictures should be faster, of wider contrast range, and often in color. Processing, like the film itself, may be selected to favor either the sound or the picture, but seldom both. The magnetic sound track doesn't care what sort of film it's on or what solutions it passes through, except for the present limitation that it won't adhere to Kodachrome.

The difficulty with Kodachrome stems from its soluble anti-halation backing. The magnetic stripe is always applied to the back of the film, and at this time it fails to adhere after the dark-hued backing layer begins to dissolve beneath it.

Several laboratories are set up to stripe raw film and Ansco provides the service at its plant in Union, N. J. Early coatings were solutions of iron oxide in a binder, applied in stripes much like paint. A recent development by Minnesota Mining & Manufacturing Co., received with enthusiasm by the camera manufacturers, is a magnetic stripe which is laminated on the film while dry. It comes in rolls on a thin plastic base, is pressed on the film, and sealed there. The thin base is then stripped off, leaving only the magnetic coating.

With the introduction of the Cinephonic, the single-system magnetic sound recording field seems destined to broaden. Undoubtedly, other manufacturers will bring out similar equipment.

The history of the Cinephonic camera is the story of Lowell A. Wilkins's efforts to combine the best in portable sound equipment with a 16-mm camera. His idea was to use fine wire, embedded in the film, making the unit a sort of wire recorder plus camera. He designed a combination camera-projector outfit making use of all weight and space-saving components of the day. That unit was shelved.

Wilkins brought the camera development to life again when Minnesota Mining & Manufacturing Co. brought word that developed film was being striped there for experimental work with magnetic recorder-projectors. The first striped raw film was obtained—coated at night to prevent fogging.

Meanwhile, advances had been made in the field of electronics which made possible a light, compact amplifier unit to fit within the housing of the camera itself. A hand-made prototype was demonstrated before the S.M.P.T.E. in 1955 and stirred up immediate interest.—▶

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EXA	NEW	34.95	89.50	129.50	134.50	169.50	169.50	169.50	84.50	119.50	—	—	64.50	59.50
	Used	25.00	79.50	109.50	114.50	139.50	139.50	139.50	74.50	92.50	—	—	54.50	49.50
EXAKTA	NEW	115.00	164.50	199.50	199.50	259.50	259.50	259.50	199.50	214.50	279.50	550.00	144.50	139.50
	Used	95.00	134.50	159.50	159.50	199.50	199.50	199.50	149.50	164.50	229.50	—	114.50	109.50
PRAKTIFLEX	NEW	49.50	89.50	129.50	139.50	179.50	189.50	189.50	74.50	94.50	179.50	540.00	54.95	—
	Used	39.50	69.50	109.50	109.50	159.50	164.50	164.50	54.50	74.50	139.50	—	44.95	—
PRAKTICA FX II	NEW	74.50	104.50	144.50	159.50	199.50	209.50	209.50	104.50	119.50	199.50	540.00	84.50	84.50
	Used	54.50	84.50	124.50	139.50	174.50	184.50	184.50	84.50	99.50	159.50	—	74.50	74.50
PRAKTINA	NEW	129.50	—	—	239.50	297.50	—	—	—	—	—	—	—	—
	Used	99.50	—	—	159.50	199.50	—	—	129.50	139.50	—	—	—	—
PENTACON	NEW	89.50	129.50	147.50	152.50	209.50	219.50	219.50	109.50	147.50	209.50	540.00	89.50	89.50
	Used	69.50	109.50	119.50	124.50	188.00	198.50	198.50	89.50	119.50	157.50	—	79.50	79.50
CONSOL	NEW	89.50	119.50	139.50	149.50	199.50	209.50	209.50	99.50	128.50	199.50	540.00	109.50	109.50
	Used	69.50	99.50	119.50	129.50	179.50	189.50	189.50	89.50	109.50	157.50	—	99.50	99.50

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Television Adventure Film

(*Continued from page* 118)

his finger on his desk and repeated that the use of a tripod was imperative for rock-steady footage, especially when using long-focal-length lens.

"The special contribution of the amateur photographer is his fresh eye," says Lesser. "However, the most unusual angles and freshest viewpoints mean absolutely nothing if the photographer doesn't carefully plan the story he is trying to tell. The plan can take the form of a detailed scenario, or a series of rough sequence outlines, with suggestions for adequate bridging shots."

In reviewing the worst flaws in the footage that reaches the *Bold Journey* screening rooms, Lesser says that the primary fault is lack of sufficient coverage. This breaks down into lack of variety in angles taken on each subject, not enough bridging shots, and too short scenes.

"A good rule, and an old one at that is, shoot a scene to establish your locale and subject matter, move in for a medium shot, a close-up, and then back off to re-establish your subject again. Following the latter rule, you can hardly miss," says Lesser.

"But even then," he goes on, "you may still lack the scenes that make the difference between a good home movie and a truly professional motion picture. In twenty minutes time a *Bold Journey* adventure may take you to places hundreds and even thousands of miles apart, or only a few feet. The man in the cutting room has the job of tying these sequences together in a manner that is pleasing to the eyes of the viewer. A great variety of angles and medium and close-up shots will help a lot, but even of more help will be what is known as a bridging shot."

A bridging shot is just what the name implies, a shot that will take the viewer quickly—with little pain—to another location to see a different action. Bridging shots can take many forms. A handy device used by the boys in Hollywood is a match-action. It works this way. You close a sequence on a tribal dance with a close-up of a man's hands beating a drum, cut to a scene of a man's hands checking the hub cap or lug nuts on a car tire, then pull back for a medium shot of the car and your principal as he stands up and looks down the road toward the distant mountains, or village. The latter sequence has provided you with an easy exit from the tribal dance to the open road again, and you are on your way to the mountains and the next adventure.

"Bridging shots can take a multitude of other forms: moving wheels, plodding feet, luggage being put on a baggage rack, fingers pointing out a road on a map, dolly shots of road signs.

"Violation of screen direction is another problem that the *Bold Journey* editors often face. To maintain screen direction a photographer must remember that if the action starts moving into the frame from the left he must keep it doing so until the sequence is completed, or it stops. Exception to the latter rule can be made only when the photographer pro-

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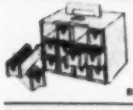

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vides a change-of-direction shot. About the simplest of the shots that can be used is to have the subject disappear around a corner, or into a woods, town, etc., come directly at the camera, or go away from it. In either case you get the viewer to the other side of the action without a shock.

Many years ago out here in Hollywood a photographer discovered the secret of using a close-up shot to lend dramatic impact to his films. In spite of that, close-ups are the key to giving your films that extra something that will capture and hold the interest of your viewers.

Other devices, too often forgotten, are cutins and cutaways. The standard use of the cutin is to show a detail of an action that you have just given the full treatment to. You move in for a few extreme close-up shots of the wood cutter's knife as he carves the delicate curve of the idol's lips, or you capture a minute detail of the marble mosaic. In any event you give your viewers the chance to crowd in close and take a good look.

You'll need cutaways to add variety to your film. They could be close-ups of the faces of your wood carvers at work. Give your viewers a chance to see who else is there and how they feel about the subject you are photographing.

"The *Bold Journey* editors and I are looking for complete stories about the adventures that ordinary people can and do have. The camera can be your eye, and the story carried by the action you see. Or you can use a continuity device to carry the story. A central character is always handy, possibly a friend, a relative, or a group of travelers. It's not necessary, but often helps. Another device could even be your suitcase. As the adventure progresses it gathers hotel labels, is carried by many different hands, tossed in a variety of luggage racks, tied to the pack on a camel, lowered into a canoe, and finally comes to rest again in the living room of your home."

In summarizing his ideas about how to make a film that could be used on *Bold Journey*, Lesser said, "The elements of a good story, whether it be in a motion picture, book, play, or opera are about the same. Capture them on film and you'll have a good story."

"Don't worry about the technicalities of motion-picture photography. Many of the best films I've seen were made by people who listened to the tips given them by their camera dealers, and read the instructions on their film boxes.

"If you think you have a film that would be of interest to Bold Journey,*" says Lesser, "don't send the film. Instead, as we announce on the program, send a letter giving full details about your story to John Stephenson of* Bold Journey *in care of your local station. He'll forward the letter to us. We'll give it careful consideration and if you have a film that will appeal to the thousands of TV viewers across the country, you'll get a letter asking you to let us screen your footage. When the film is definitely chosen for the viewers, you will be given a very brief interview when the show starts, and then do the narration for your own film.*—

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- Built in Self Timer
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DeLuxe Case $5.95 Flash gun $5.95

Plus FREE 4-section aluminum tripod — collapsible — Valued at $12.95

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Bolsey B-2, f3.2 case & flash	66.50	27.00
Contaxa, f2.8 ctd RF		67.00
Contaflex I, f2.8 ctd Tessar	169.50	67.50
Contaflex II, f2.8 ctd Tessar	199.50	121.00
Graphic 35, f3.5	89.75	47.50
Kodak Pony 135, f4.5	29.75	14.00
Kodak Retina II, f2 Xenon, RF		49.00
Kodak Retina IIA, f2, RF	127.50	64.00
Kodak Signet, case & flash	92.50	36.00
Minolta A, f3.5	49.95	29.50
Pentacon, f2.8 Auto	249.50	108.50
Pentacon, f2 ctd Biotar	249.50	87.50
Praktica FX, ctd f1.9 Meyer P.S.	139.50	57.50
Praktiflex, f2 ctd Biotar	169.50	72.50
Rectaflex, f2 ctd Xenon	329.50	119.50
Voigt Prominent, ctd f2	220.00	118.50
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	New	Used
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Ciroflex E, ctd f3.5 Sync	99.50	38.50
Exakta 66, f2.8 Tessar-MX	319.50	149.00
Ikoflex IIA, f3.5 Auto	126.00	69.00
Ikoflex IA, f3.5 Tessar	99.00	57.00
Kodak Reflex II, ctd f3.5, Sync	155.00	47.50
Rolleicord III f3.5 Xenar	—	55.00
Rolleicord V, f3.5 Xenar	134.55	74.00
Rolleiflex, Sync, f3.5 ctd Tessar	—	99.50
Rolleiflex MX, f3.5 Xenar	217.50	111.00
Rolleiflex MX, f3.5 Tessar	232.50	118.00
Rolleiflex MX, f2.8 Xenotar	291.50*	170.00

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	New	Used
Leica IIIC, f3.5 Elmar	—	$76.00
Leica IIIC, f2 ctd Summitar	—	95.00
Leica IIIF, f2 ctd Summicron	$336.00	165.00
Leica IIIF, f2 ctd Summitar	268.50	140.50
Leica IIIF, f1.5 ctd. Summarit	357.00	170.00
Contax II, f2 Sonnar	—	66.00
Contax IIA, f2 ctd Sonnar	345.00	133.50
Contax IIA, f1.5 ctd Sonnar	374.00	154.50
Contax IIIA, f2 ctd Sonnar	383.00	168.95
Nikon S f2	—	106.50
Nikon S2 f1.4 ctd Nikkor	345.00	218.50

LEICA LENS SALE

	New	Used
28mm f3.5 Nikkor	149.50	76.50
35mm f2.8 ctd Biogon	181.00	75.95
35mm f3.5 ctd Nikkor	89.50	50.00
35mm f3.5 ctd Summaron W.A.	96.00	54.00
85mm f2 ctd Nikkor	175.00	85.00
90mm f4 ctd Elmar	90.00	53.50
135mm f4.5 ctd Hektor	135.00	60.00
135mm f4 Sonnar	146.00	66.50
135mm f3.5 Nikkor	135.00	66.50
400mm f8 Astro with Reflex housing	490.00	217.50
800mm f6.3 Talon with Reflex housing	900.00	475.00

EXA EXAKTA SALE

	New	Used
Exa, f2.8 ctd	$ 88.95	$ 37.00
Exakta f2 ctd Biotar	199.95	111.00
Exakta VX f3.5 ctd Tessar	199.50	124.50
Exakta VX, f2.8 Auto Westanar	239.50	136.50
Exakta VX, f2.8 ctd preset Tessar	279.50	149.00
Exakta VX, f1.9 ctd Auto Xenon	341.70	185.50
Exakta VX, f1.5 ctd Angenieux	369.50	179.00

LENSES

for, Exakta, Contax-D Praktica, Pentacon

	New	Used
28mm f3.5 ctd Angenieux	$120.00	$ 63.00
35mm f2.5 ctd Angenieux	99.50	53.00
35mm f2.8 ctd Auto Zeiss	149.50	88.00
40mm f3.5 Makro E	89.95	55.00
75mm f1.5 Zeiss Biotar	211.50	79.50
90mm f2.5 ctd Angenieux	94.50	55.00
135mm f3.5 ctd Angenieux	89.50	51.00
180mm f5.5 ctd Xenar	84.95	46.00
400mm f5.5 Meyer Tele Megor	195.00	89.50
800mm f6.3 Telon	750.00	399.00

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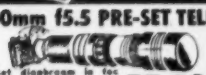

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500 W Revere 880, Auto	144.50	79.50
500 W TDC Stereo	169.50	79.50

USED ENLARGER SALE

	NEW	USED
35mm Federal 135, f4.5 Cond	$ 54.95	$ 32.50
35mm Focomat 1-C f4.5 Autofocus	183.00	114.50
2¼ x 3¼ De Jur 1, f4.5 Cond	99.50	58.50
2¼ x 3¼ Exact 66, f4.5 Cond	142.75	79.50
2¼ x 3¼ Federal 269, f6.3 Diff	43.95	22.00
2¼ x 3¼ Federal 279, Cond. lens	51.95	25.50
2¼ x 3¼ Solar 120, f4.5 Cond	114.50	67.50
2¼ x 3¼ Sunray, f4.5 Cond	87.50	59.50
4 x 5 Federal 470, f4.5 Cond	142.95	85.50
4 x 5 Solarmatic, f4.5	169.50	104.50
5 x 7 Elwood S-2, f6.3	97.50	67.50

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	New	Used
2¼x3¼ Pacemaker Crown f4.5 cpld RF	399.50	117.50
2¼x3¼ Ann Speed Graphic, f4.5 ctd. cpld RF, flashgun	219.50	80.50
3¼x4¼ Ann Speed Graphic, f4.5, cpld RF, flash	—	83.50
3¼x4¼ Pacemaker Crown, f4.7 cpld RF, flash	—	117.50
4x5 Ann Speed, f4.7 cpld RF, flash	249.50	97.95
4x5 Pacemaker Speed, f4.7 cpld RF, flash	348.00	147.50
4x5 Linhof, f4.5, cpld RF, flash	427.50	197.50
4x5 B&J, f4.5, cpld RF, flash	265.00	87.50
4x5 Busch, f4.5, cpld RF, flash	263.00	89.50

8mm CAMERA SALE

	New	Used
ROLL		
B&H 252 f2.3	59.95	28.50
B&H 134 W f2.5	89.95	36.00
Bolex C-8, f2.5	89.95	52.50
Kodak Brownie f2.7	39.95	18.50
Keystone K-25 f1.9	59.95	35.50
Keystone K-32 f2.5	84.95	43.00
TURRET		
B&H 134 TA f1.9	169.95	97.00
Bolex B-8 f2.5	119.50	63.50
Bolex H-8 f1.9	369.50	148.00
Keystone K-35 f2.5	99.95	57.50
MAGAZINE		
B&H 172 B f1.9	164.95	87.50
De Jur Fadematic f1.9	142.50	84.50
Keystone K-45 f1.9	104.50	63.50
Keystone K-40 f1.9	149.50	54.50
Kodak f1.9	104.50	52.50
Revere 40 f2.5		
MAGAZINE TURRET		
B&H 172 A f1.9	199.95	116.50
De Jur Fadematic f1.9	174.50	107.50
Keystone K-45 f1.9	139.50	79.50
Revere 8-63 f2.8	152.50	81.50
Revere 44 f1.9	164.50	89.50

8mm PROJECTOR SALE

	New	Used
B&H 253 Monterey 500w	79.95	41.00
B&H Regent, case 500w	179.95	86.50
Bolex M-8, case 500w	169.50	94.50
Keystone K-109, 750w	149.50	70.00
Keystone K-70 Bright beam 500w	64.95	37.95

16mm CAMERA SALE

	New	Used
B&H 200 T f2.5 Turret	174.95	107.75
Keystone A-9, ctd f2.5	99.50	55.00
Bolex H-16, ctd f1.9	369.50	146.00
B&H 70 DL, ctd f1.9	365.50	215.50

16mm PROJECTOR SALE

	New	Used
Bell & Howell 273 A, case	$199.95	$ 98.00
Bell & Howell 202 C sound	719.95	388.00
Bell & Howell 285 C sound	449.95	348.50
Keystone A 82	139.50	62.00
Keystone K-161	159.50	73.00
Revere 48	182.50	72.00

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One Flashbulb is Enough!

(*Continued from page* 78)

or, to put it another way, permitting the camera to be "stopped down" one full stop.

For example, with a No. 5 or 25 bulb and fast panchromatic film the guide number for 1/200 second is 155. But at speeds of 1/25 second and open flash, the guide number increases to 250. With a No. 11 or Press 40 bulb, the guide numbers would be 180 and 295, respectively.

To further increase the exposure capacity of a single bulb load your camera with one of the new superfast films. For example, with Tri-X film, open flash, and a No. 5 or 25 bulb the guide number is a sizeable 350. With a No. 11 or Press 40 bulb it's a tremendous 500!

However, you must be careful about overexposing the foreground when squeezing the maximum light-producing power from your flashbulbs. One way to reduce this hazard when photographing groups is to shoot from a balcony or other high vantage point and hold the detached flashgun so that it points up rather than directly out as in the normal flash-on-camera position. Another solution is to place the single flashbulb on an extension far to the side and forward of the camera. In this position it will spill some light back toward the camera, thus throwing a combination backlight and sidelight on the foreground subjects, but the most intense blast of light will be thrown toward the more distant areas. However, the best solution is simply to avoid having foreground objects in your picture.

You'll find the one-bulb, open-flash technique invaluable in many picture-taking situations. For example, most photographers sometimes are called upon to make "hit-and-run" exposures of large groups, a job usually reserved for strings of flash extension lamps.

One "small group" for which I had brought along only flash-on-camera turned out to be an auditorium with sixty seated guests. And another similar instance also required suddenly that a picture be made from a balcony to the stage of a symphony orchestra and choral group. It isn't just a sudden embarrassing lack of proper equipment that makes this technique necessary; sometimes it's simply a lack of time, as in the final moments of a community meeting where there was barely time to get to a high vantage point before the audience was gone.

It was in knowing the utmost capacity of "open-flash" conditions that helped to "save" each of these situations from photographic disaster.

Of course, as in most other photo work, to get something, one sacrifices something. Use the full life of the bulb and you give up the action-stopping effect which flash exposures made possible. Open the lens to the maximum and the area in focus before the lens (depth of field) shrinks to its barest minimum of "in-focus" depth. But even so, with the proper type of subject matter the open flash technique is a wonderful trick to have up your sleeve, and can save many an "impossible" shot quickly and easily.—

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6" Filters	3.70	1.75
10" Filters	8.00	2.65
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with f/2.8 Zenotar	309.50	232.13

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3¼x5¼	SWG, 4	500	1.90
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7½x7½	SWG, 0	144	1.00
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8x10½	LWFSM, 3-4	100	1.50
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8½x11	LWFSM, 2	50	1.00
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10x10	SWSM, 1	144	2.45
10x10	LWFSM, 2-3	250	3.20
10x10	SWSM, 2-3	250	3.20
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Build the Picture with Light

(*Continued from page* 53)

to park at 4:30 p.m. at a spot which at 5:00 p.m. would be the center of converging homebound traffic.

The camera was already set up on a tripod and aimed and focused, when the truck maneuvered into exactly the right spot at 4:31 p.m., followed by a police squad car to make sure I would get jittery over the lack of time. Quickly checking the groundglass, I closed the lens down to f/32 and got a flashgun and three flashbulbs ready. I opened the shutter on "Time," quickly ran to a predetermined spot, and fired a flashbulb. Then I sped to another spot where I fired two bulbs in quick succession and finally I returned to the camera and closed the shutter.

I guessed that during my running around and shooting off of flashbulbs the background had been properly exposed. Just to make sure, I repeated the performance with a fresh sheet of film and three more flashbulbs, this time opening up one stop to f/22. Then I signalled the truck driver to move on, grinned triumphantly at the bewildered cops in the squad car and pointed to the big electric clock nearby. It was 4:40 p.m.! (You can see the result on page 51.)

This business of walking around in the dark and firing off flashbulbs is just a modern version of the reliable old "painting with light" technique. The first professional photographer I remember watching used to come into the lamp factory where I worked as a boy and make catalog photographs of six or eight floorlamps at a time, painting them one by one with a single carbon-arc lamp, a black cloth over him so he could walk around in the picture area unrecorded by the film.

The technique is based on the film's ability to store various impressions received over a period of time. This is what happens in double or multiple exposures, whether accidental or planned. The photographer who learns to take advantage of this "memory bank" is not limited to natural light or ordinary artificial light when they do not give him the effect he wants. He can build up any lighting effect and create a convincing, "synthetic" illusion in a variety of circumstances.

With subjects that do not move, the walk-around flash form of synthesized lighting is easy to use and exposure is simple to calculate. You decide in advance that each flashbulb will illuminate a different part of the subject matter. To make it simple and precise, stick to one flashbulb size throughout and use each flashbulb at the same distance from the subject area it is to illuminate. Then all you have to do is set the aperture for this standardized flash-to-subject distance. Each subject area will then be properly exposed by its individual flashbulb. You can either leave the shutter open all the time—camera on tripod, of course—or have somebody cover the lens between flashes if there is danger from extraneous light. (Naturally the above principles also apply to speedlight.)

You'll find it easier to calculate your walk-around flash exposures if you study

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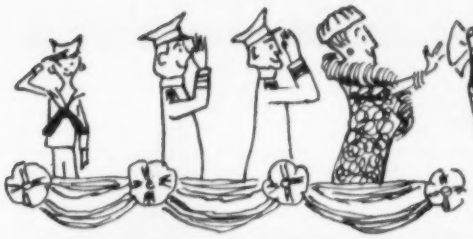

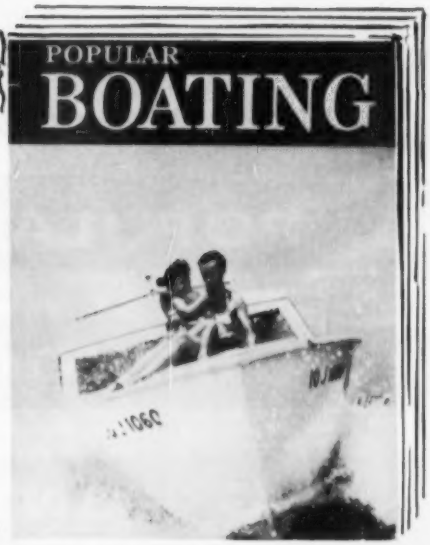

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FOLLOW THESE SIMPLE RULES:

1. This contest is being held to encourage the use and improvement of photography among young people, and is open to all high-school students in the United States and Canada. Employees of POPULAR PHOTOGRAPHY, the Ziff-Davis Publishing Company, and their families are not eligible. CONTEST OPENS SEPTEMBER 6, 1956 and CLOSES JANUARY 15, 1957.

2. Prizes will be United States Savings Bonds, Series E., merchandise certificates, and subscriptions to POPULAR PHOTOGRAPHY. Values of prizes listed are maturity values of the bonds. Merchandise certificates redeemable only at photo-supply store where entry blank was obtained.

3. The prizes will be awarded to the students whose photographs are judged best by the editors of POPULAR PHOTOGRAPHY. In case of ties, duplicate prizes will be awarded.

4. Eight special prizes of merchandise certificates worth $100.00 each will be awarded to the high-school camera clubs whose members win one of the eight top prizes. If there is no organized camera club at the school, the prize will be awarded to the school and may be used to help establish one.

5. Black-and-white photographs only are eligible, and each contestant may submit no more than six prints. There are no restrictions as to subject matter, and unmounted prints of any size up to 11x14 are eligible.

6. Each print must have secured to it a filled-in entry blank available only at your photo-supply store. Information requested on the blank should be printed or typewritten. Failure to provide full information on entry blanks will disqualify the print.

7. Entries will not be returned; nonqualifying prints will be destroyed immediately following announcement of the prize winners. The Contest Editor will not enter into correspondence of any kind regarding entries.

8. Prize winners will be announced in the June 1957 issue. Prize-winning prints and negatives, including all reproduction and promotional rights, become the property of POPULAR PHOTOGRAPHY. Students winning prizes will be required to furnish original negatives before prizes are given, as well as model releases where necessary in the judgment of the Contest Editor. All prize-winning negatives become the exclusive property of POPULAR PHOTOGRAPHY.

9. Address all entries to High-School Contest Editor, POPULAR PHOTOGRAPHY, 366 Madison Avenue, New York 17, N.Y. Entries must be postmarked not later than midnight of January 15, 1957.

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CONTEST CLOSES JANUARY 15, 1957 WINNERS PUBLISHED JUNE, 1957, ISSUE

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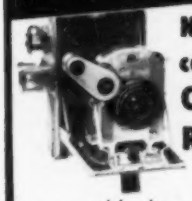

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the shot of General Motors' new Aerotrain on page 51. The train was scheduled to arrive in Chicago one day at 1:00 a.m. I knew that I would have several hours to photograph the plastic interior fittings for a Monsanto ad to appear in *Life*. I learned that several attempts by others to glamorize the exterior of the train had met with little success, so I was eager to try my hand at it.

Although my assignment called for available-light interiors, I did happen to have a flashgun and plenty of flashbulbs with me. The camera was a 4x5 Linhof, about 2 feet above the ground on a sturdy tripod. There was just enough light in some of the train windows for me to focus my 135-mm f/3.8 lens, and then swing the back of the camera to equalize the focus. I planned on using Press 25s, each about 20 feet from the part of the train it was to illuminate, so I closed down accordingly.

Borrowing two signal lanterns from curious brakemen who were watching (any flashlights would have served as well), I pressed the ad-agency art director into service and worked out a set of signals. He was to hold the film-holder slide in front of the lens to block any exposure (the shutter being open on "Time") until he saw me blink my signal light. He would then uncover the lens and blink a signal back at me. Seeing the signal I would shoot a flashbulb, whereupon he would cover the lens again.

With the train's headlights off, I started out, walking along quickly and signalling the man at the camera. Changing flashbulbs as I moved, I fired off two on the left, aimed at the front of the locomotive, then some twenty or so more along the length of the train, keeping myself out of the range of the camera and waiting occasionally to let working trainmen or porters on or off the train. Then I climbed into the engineer's cab and fired a flashbulb aimed at the rear of the cab ceiling. I then had the engineers turn the headlights on long enough for my needs. Then I returned to the camera, closed the shutter, and removed the film holder. In less than half an hour we made two negatives this way. They turned out to be all I had hoped for so I submitted a print.

When the ad appeared, my assigned interior got about 3x4 inches of space; my unpremeditated exterior ran clear across the magazine page!

One of my favorite shots was one I turned out as part of a production for Kaiser Aluminum, showing how their extruded aluminum was being fabricated into railroad crossing signals with reflective "Scotchlite" tape. To dress up the series and show the application, we decided on a dramatic night-time shot of a car waiting at a railroad crossing, its headlights reflecting from the warning sign. (You can see the results on page 50.)

The spot we picked was a rather lonely crossing at night and I could take my time. We got there at dusk, picking up a spare one-dollar flashlight at a gas station along the way. We set up the 4x5 camera on tripod, positioned the car, focused, and composed. By that time it was dark enough to start work. We turned out the car lights and opened the shutter.

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Previous inspection on the groundglass showed that if the flashlight was aimed at the reflective tape from camera position, it produced a good, glaring image. With the film in place and the shutter open I was able to "paint" the sign and its post by moving the flashlight beam evenly up, down and across, counting so I would be sure all areas got the same amount of light. It would be nearly impossible to overexpose in this situation so I just kept right on. Then I proceeded to do the same with the car itself, this time walking around alongside the car, raising and lowering the flashlight. Dressed in dark clothes, my presence within the picture area was not recorded.

All the illumination on the car itself, including the tires and the ground surface, is the result of patient perambulating with the flashlight. When a train arrived, I left the shutter open so I could record the train lights streaking across the picture. At the same time I had my companion turn on the car's lights and step on the brake pedal to get the bright "stop" light. We even switched on the interior dome light to help light up his white shirt. When I felt I had everything I wanted on the film, including the train itself, I closed the shutter, changed the film, then tried again.

We remained on location for several hours, making as many negatives as the passing train traffic would allow. When the trains finally stopped coming—after the commuters were all safely home—we folded up and went home ourselves. One of the negatives was especially good; it was picked up by I.N.P. for use as a one-picture newspaper feature.—

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CAMERAS, STILL

6. (f) Argus Photo Tip Portfolio: 5 Booklets on Flash, Filter Magic, Curtain Time, TV Pictures, Copying and Close-up. 25c. ARGUS CAMERAS, INC.

8. (a) Book: Complete reference book for amateur and beginner, "The Bolsey Guide," 128 pp., 70 illus., charts, tables, $1.95. (b) Circular: Bolsey Precision Cameras, features new Jubilee Threesome, prices. OBEX CO.

11. (a) Brochure: "Bino-Fotography." (b) Booklet: "How to Select Binoculars." D.P. BUSHNELL COMPANY.

18. (a) Brochure: List and prices of 400 items for Exakta cameras. (c) Brochure: Automatic Exakta VX; New booklet. EXAKTA CAMERA COMPANY.

23. (a) Booklet: For Prize Winning Pictures—**GRAFLEX.** Specifications, etc.

26. (a) Booklet: The Royal Robot, (b) Booklet: Robot Underwater Camera; (c) Booklet: Robot Accessories. (f) Brochure: Gives full details on new full-frame 1" x 1½" Robot Royal 36-power-drive camera as well as accessories. INTERCONTINENTAL MARKETING.

34. (a) Booklet: Minolta "A"; Minolta 35, Model II and Rokkor lenses. (b) Booklet: Minolta Autocord and Minoltacord. (d) Booklet: Minolta Autocord, description and accessories, illus. (e) Pamphlet: Minolta Autocord Model L; built-in Light value meter, description and accessories, illus. FR CORPORATION.

38. (a) Catalog: Discusses each Polaroid Land Camera, accessories, gives hints and ideas for using 60-second pictures, illus. POLAROID CORPORATION.

39. (a) Brochure: Information on book titled "35mm Photography With A Praktiflex." (b) Brochure: New booklet on the Prakticon-Praktiflex FX. PRAKTICON COMPANY.

41. (a) Brochure: "Realist 35"; detailed facts on Model A & B, accessories. (c) Brochure: Realist 45, description, illus. REALIST, INC.

45. (a) Booklet: Omega 120; data, description. SIMMON BROTHERS.

52. (a) Booklet: "The Voigtlander Line"; complete details, description, illus. (b) Booklet: Complete detailed information of Hasselblad Camera, accessories, 26 pp., illus. (c) Hasselblad Super Wide Camera, details, description of camera, accessories; 32 pp., illus. (d) Folder: "Hasselblad 1000F", illus., descriptive pamphlet of Hasselblad and accessories. (e) Folder: Illustrated and descriptive folder on Hasselblad Super Wide. WILLOUGHBY'S WHOLESALE.

53. (a) Brochure: "Edixa"; describes 35mm Edixa cameras, accessories, lists prices. WIRGIN BROS.

72. (a) Brochure: Walzflex Model II Camera Kit, Description, Specifications, How to use Jumbo Mask, Accessories, illus. (b) Brochure: Walzflex Semi-Automatic; gives specifications, lists accessories and full description; illus. U.S. PHOTO SUPPLY CORPORATION.

CAMERAS, MOTION PICTURE

7. (a) Brochure: The Auricon Cine-Voice; 16mm camera for professionals. (b) Brochure: Same as above, except for home movie makers. (c) Booklet: How to use your Cine-Voice, 16mm sound-on-film Recording Camera. (d) Catalog: 40 pp., illus., Auricon Cameras. BERNDT-BACH, INC.

12. (a) Brochure: "The Eumig 88"; description, details, lists accessories for this 8mm movie camera. CAMERA SPECIALTY.

26. (d) Brochure: Bauer 88 motion Picture Cameras; Descriptions and accessories; also details on Bauer 88B camera with built-in exposure meter. (e) Booklet: Bauer 8mm Cameras. Complete descriptive literature on the Bauer cameras as well as the story of Bauer plant in Germany. Material includes cameras, accessories and suggestions as to use of equipment. Illus. INTERCONTINENTAL MARKETING CORP.

30. (a) Booklet: 8mm full line covering all 8mm movie cameras and projectors. (b) Circular: 16mm full line covering all 16mm movie cameras and projectors. (d) **Book: Keystone Movie Scene Record Book; 15c.** KEYSTONE CAMERA COMPANY.

43. (a) Booklet: Cameras by Revere. REVERE CAMERA COMPANY.

63. (a) Catalog: Lists Wollensak Motion Picture Cameras, Projectors, Stereo Cameras and accessories, prices, descriptions. 12 pp., illus. WOLLENSAK OPTICAL.

MOTION PICTURE ACCESSORIES

29. (d) Booklet: "Editing for Better Movies" by Leo Heffernan, Reg. 50c. Special 10c. KALART COMPANY, INC.

37. (b) Magazine: "The Bolex Reporter," quarterly, available thru franchised Bolex dealers. PAILLARD PRODUCTS, INC.

42. (a) Brochure: RCA 400 Junior and Senior 16mm Sound Projectors; nontechnical description of operating features. Illustrates sound equipment which may be combined with projectors in semi-permanent or permanent installations, 12 pp., illus. RADIO CORPORATION OF AMERICA.

43. (b) Booklet: Features and operation Curvamatic Splicer. (c) Booklet: Curvamatic Splicer, details, data. (g) Booklet: Motion Picture Equipment. REVERE CAMERA COMPANY.

LENSES

11. (c) Pamphlet: "Those Startling Fujinons"; discusses the new 50mm F1.2 and 35mm F2 lenses. D.P. BUSHNELL COMPANY.

15. (a) Chart: How to use Two Ednalite Portrait Lenses. (b) Brochure: Portrait Lens Instructions; tables, charts on +1, +2, +3 portrait lenses. (c) Reprints Ed N. Lite Column: informal, simple information on use of EdnaLite Filters. (d) Charts: EdnaLite Color Filter Selector—the correct EdnaLite to use under approximate lighting conditions of all kinds. (e) Filter Guides: Listing and describing all available EdnaLite Filters, filter factors. (f) Booklet: The EdnaLite Story—Complete story with photographs, telling and showing how EdnaLite Solid Optical Glass Filters are made, from raw glass to finished product. (g) Memo from Ed N. Lite—Complete with description of EdnaLite Filter Kits and Filter Factor Chart. (h) Leaflet: Facts and information on the Reversible Wide Angle/Telephoto EdnaLite Dual-Lens. EDNALITE OPTICAL COMPANY.

16. (a) Leaflet: "How To Use Enteco Polarizing Screens and Enteco Polarizing Filters with Still and Movie Cameras." (b) Leaflet: New Enteco data and information charts on close-up photography with supplementary lenses. (c) Leaflet: Revised edition of Enteco "Filter Information," handy filter factor and film speed chart, filter types. ENTECO INDUSTRIES.

17. (a) Booklet: "Take A Tip From Hollywood," describes Elgeet lenses, instructions on home movies, etc., 36 pp., illus.; 10c. ELGEET OPTICAL COMPANY.

18. (b) Brochure: Steinheil lenses, wide angle, telephoto and movie lenses. (c) Brochure: Angenieux Lenses, complete information on construction, angles of view, relative magnification, range, focal length. **(d) Catalog: "Equipment Information from Exakta," lists latest lenses recommended for the Exakta Camera, 28 pp., illus. 10c.** EXAKTA CAMERA COMPANY.

28. (b) Folder: How to Use Your Elitar Soligor Lens, descriptive information on Telephoto, Wide Angle, prices. INTERSTATE PHOTO SUPPLY.

31. (b) Chart: Shows test of Hexanon 50mm F/2.8 lens as used in the Konica II. KONICA CAMERA COMPANY.

52. (f) Booklet: "Zeiss Lenses For The Hasselblad Camera," detailed information and discussion of Zeiss lenses for the Hasselblad; 10pp, illus. WILLOUGHBY'S WHOLESALE.

54. (a) Booklet: Raptar 8mm cine lenses. (b) Booklet: Raptar 16mm cine; depth of field projection charts. (c) Booklet: "How to Have More Fun With Your Camera." WOLLENSAK.

61. (a) Circular: Slip-On Filters. (b) Circular: Hi-Trans Filters. (c) Circular: Auxiliary Close-up Lenses for all movie and still cameras. (d) Circular: Photar Filters. (e) Circular: Tiffen-Polaroid Light-Polarizing Filter. (f) Folder: Neutral Density Filters, explanation of neutral density filters—what they are and how they work, illus. (g) Folder: Wallet size, Handy Filter Selector. Lists filters for color films, black and white films, also gives exposure guide for Kodachrome and Ektachrome films. (h) Brochure: Tiffen Filter Adapter Ring Selector lists Tiffen special adapter rings for specific still cameras, movie cameras; also lists Tiffen Screw-in Lens Caps and standard adapter rings, prices, etc. TIFFEN MARKETING CO.

69. (a) Brochure: Describes the Zunow f1.1 lens; gives specifications, depth of field chart, etc. ZUNOW OPTICAL CORPORATION.

72. (c) Brochure: Walz quality Movie Lens; complete description of wide angle lenses, telephoto lenses and standard lens, illus. (d) Pamphlet: illustrates how different type Walz filters improve your picture. U.S. PHOTO SUPPLY.

PROJECTORS, SLIDE

5. (a) Booklet: How To Select A Slide Projector. AMERICAN OPTICAL.

21. (c) Folder: Describes Skan automatic "slide-cooling" projector, illus. G-M LABORATORIES, INC.

44. (a) Brochure: A complete listing of all regular View-Master Reels and Packets, including product prices. (b) Brochure: Stereo Today, a complete coverage of the View-Master Stereo System, information on products in this system. SAWYER'S, INC.

48. (a) Leaflet: Engineered projection equipment; data, details. VIEWLEX.

65. (a) Booklet: "How to Show Your Slides Without Losing Your Friends"; step by step procedure for building a slide program instead of a series of individual pictures. LA BELLE INDUSTRIES.

FLASH EQUIPMENT

1. (a) Booklet: Various styles of lighting equipment for still pictures, indoor movies and 3-D shots. (b) Folder: Describes use of multiple floodlamp control box, gives electrical facts affecting use of flood and flash lamps; 6pp. (c) Catalog: Photoflood Lighting, highly descriptive and illustrated 16-page booklet of lighting equipment for amateur and professional photographer. Includes lighting tips on indoor still and movie pictures with diagrams, charts, etc. ACME-LITE MFG. CO.

4. (a) Booklet: "How To Take Professional Flash Pictures With Your My-T-Myte Flashbulbs," 8pp., illus. AMPLEX.

13. (a) Booklet: "Light Makes the Picture, Synctron Takes It Better." (b) Booklet: Current technical data on Synctron models. (c) Catalog: Includes accessories, technical information, prices, individual specification sheet for each model. (d) Folder: "55 Quick Facts on Dry Battery and Dynaseal Power." DORMITZER ELECTRIC COMPANY.

22. (a) Folder: "Triangle Lighting" formula for taking indoor pix with light. (b) Booklet: Photoflash Tips. (c) Bright Ideas-flash pix of parties, kids, adults. (d) Photolamp Data—lighting, exposure, film speed for flash, flood, other lamps. (g) Booklet: The M-2 Bulbs; data information on the "tiny" bulbs. GENERAL ELECTRIC.

23. (b) Folder: Graflite. (c) Folder: Stroboflash. GRAFLEX.

24. (f) Folder: "Why You Will Get Better Flash Pictures with the Heiland Foto-Mite," 14 pp., illus., how to use the flash unit, with picture-taking hints. (g) "Take Your Pick" folder, illus., describing new Strobonars 61A, 62A, Seven and 71A, with light distribution comparison photos and accessories. (h) Folder: "The Heiland Professional Line"—Flash Units, Synchronizers and Standard Strobonars," describes Strobonars I, III, IV, Six, famous Press Model Synchronizers, Synchro-Customs, and complete accessories including cords, reflectors and battery cases; illus. HEILAND.

34. (c) Booklet: Minolta Jr. B-C Flash Gun. FR CORPORATION.

25. (a) Folder: Sun-Lite II; description and illus. on speedflash. (b) Folder: Sun-Lite 500, description and information, 6pp, illus. (c) Folder: Flash Saver, description, 4 pp. (d) **Manual: Sun-Lite II instruction booklet, detailed information on Sun-Lite II Portable Speed Flash, all 3 models; 20 pp., illus.; 25c.** HERSHEY MFG. COMPANY.

28. (a) Folder: Describes 3 models of electronic flash, Expert IV, Matador, Reporter I, prices. INTERSTATE PHOTO SUPPLY.

29. (c) Folders: Kalart Flash Equipment, BC-400 and Kalart Super Speed Flash. (e) How B. C. by Hy Schwartz. KALART COMPANY, INC.

35. (a) Booklet: Eveready Battery Engineering Bulletin on flash photography, 12pp. illus.; issued periodically. (b) Eveready Batteries, data, helpful information "B," "B-C" batteries. NATIONAL CARBON COMPANY.

36. (a) Leaflets: Technical information and data on use of the Megalume electronic flash. (b) Pamphlet: "Reciprocity Failure and the Determination of Exposure With Some Electronic Flash Equipment." NEMS-CLARKE, INC.

46. (a) Brochure: Listing of lighting equipment for semi-professional or advanced amateur. (b) Brochure: Complete listing of lighting equipment for the amateur and movie maker. (c) Booklet: "Indoor Photos Made Easy," how to do indoor lighting, 10pp, illus. SMITH-VICTOR CORPORATION.

47. (a) Folder: "Flash is Easy—Flash is Fun"; complete flash instruction for advanced, amateur, beginner. (b) Booklet: How to Take Better Pictures and Have More Fun With Flash: 32pp. illus. (c) Booklet: Color Flash with Box Cameras. (d) Booklet: How to Throw a Snapshot Party; 24pp, illus. (e) Card: Wallet Size, gives correct F-stops. (f) Brochure: Basic Lighting Placement, illus. (g) Specification Sheets: 1. Blue Dot Line; 2. Projection Lamps; 3. Darkroom and Enlarger Lamps; 4. Super-floods. SYLVANIA ELECTRIC.

8. (c) Exposure Guide: Pocket size, gives correct F-stops. OBEX CO.

50. (b) Brochure: The ABC of Flash Photography; guide to how, when, why to use flash bulbs. (c) Brochure: Your guide to better pictures thru better lighting; comprehensive discussion of Westinghouse bulbs.

55. (a) Booklet: Descriptive data and information on Limelite "60"; 14pp., illus. (b) Folder: Describes Limelite Electronic Flash: 4pp. illus. (c) Folder: Yankee Complete Home Developing and Printing Kit, 6pp. illus., instructions for use of Yankee Photo Developing and Printing Kit; making your own negatives; making a picture from your negatives; loading the printing frame, etc. (d) Catalogue: Yankee photo products; 35mm slide trays and accessories, electronic flash, developing and printing accessories, illus., prices and description. YANKEE PHOTO PRODUCTS.

62. (a) Booklet: Electronic Flash. (b) Booklet: Brighter Way to Better Pictures, 16pp. FR CORPORATION.

72. (g) Pamphlet: Walz Pocket Flash-Gun; description and instruction on how to use, illus. U.S. PHOTO SUPPLY.

PROCESSING EQUIPMENT AND MATERIALS

10. (a) Brochure: Illustrating design and function of Model 45M Enlarger, 24pp. (b) Leaflet: Additional uses of Model 45M Enlarger. (c) Pamphlet: Discusses characteristics and operation of Model 57MB. (d) Book: A Brief 73 Year History of Enlarger Design. 32pp. CHARLES BESELER COMPANY.

19. (a) Booklet: "How to Buy an Enlarger." FEDERAL MANUFACTURING AND ENGINEERING CORP.

27. (a) Leaflet: Time-O-Lite Printer. (b) Leaflet: Time-O-Lite Meters and Switches. INDUSTRIAL TIMER.

33. (a) **Booklet: "Marshall's Guide for Hand-Coloring Photographs," special section on heavy oils, 36 pp., illus. 25c.** (b) **Pamphlet: Color Chart: Marshall's photo-oil colors, price list of sets, accessories, 10c.** (c) Pamphlet: Make Life More Colorful, discusses photo-coloring; (d) Pamphlet: Information on the photo-oil pencil. (e) **Book: "Photo-Oil Coloring for Fun or Profit," 17 chapters, 148 pp. 22 illus., color charts, 9 color plates; explains detailed portrait work, right papers for coloring, how to mix paints, color harmony, landscapes, etc. $3.50.** JOHN G. MARSHALL MANUFACTURING CO.

45. (b) Catalogs: Omega A-2, B-7, B-8, D-2, D-3, E-5; (One on each model, specify which you want.) (c) Booklet: How To Buy The Right Enlarger. (d) Booklet: Omega Distortion Correction Attachment. SIMMON BROTHERS.

56. (a) Folder: Describes "Static Master," gives uses and prices, 3pp, illus. NUCLEAR PRODUCTS.

58. (a) Brochure: Discusses Lisco Cut Film Holder; gives data and information on exclusive features. LISCO PRODUCTS.

60. (a) Booklet: Clayton P-60 Fine Grain Developer; detailed instruction on use; 16pp, illus. CLAYTON CHEMICAL CORP.

64. (a) Booklet: Describes methods and materials for mounting transparencies for viewing and projecting. ERIE SCIENTIFIC CORP.

62. (c) Booklet: Cut Film Pack Developing Tank. (d) Booklet: Developing Tank. (e) Booklet: Proven Liquid Chemicals. (f) Booklet: You'll Enjoy Developing & Printing. (g) Booklet: Big Picture Fun for Everyone (Enlarger). (h) Booklet: Home Developing & Printing Kit. (i) Booklet Developing & Enlarging; FR CORPORATION.

68. (a) Catalog and Handbook: 18 pages, illustrated, Nega-File slide cabinets, accessories. (b) Circular: Four New Files by Nega-File, describes new files created by Nega-File to hold from 20 to 50 of the small plastic Kodaslide boxes, prices and types. NEGA-FILE COMPANY.

70. (a) Booklet: New booklet on magnifiers for shop, lab, darkroom by Bausch & Lomb. How to choose the right magnifiers for specific needs and how to get the best performance from them. Descriptions and illustrations. BAUSCH & LOMB OPTICAL CO.

EXPOSURE METERS

20. (a) Booklet: Catalog sheet and booklet describes original direct-reading, photo-electric exposure meter, reading directly in f stops, with film speed charts. (b) Brochure: "Ideal Rangefinder," instructions for calibrating rangefinders. (c) Brochure: Catalog sheets, golf club selector guide, information on Long-Range Rangefinder and its uses. FEDERAL INSTRUMENT CORP.

21. (a) Circular: Describes the Skan Quick Meter, price, information. (b) Booklet: Technical data, information on use and care of Skan Meters, helpful hints, 24pp, illus. G-M LABORATORIES, INC.

22. (e) Leaflet: GE Exposure Meters, significant features which adopt one of three GE meters to specific requirements. (f) Booklet: Color Control Meter and Variable Color Filter; how to achieve full control of color. GENERAL ELECTRIC.

51. (c) Booklet: Help in Selecting the Right Exposure Meter. 15pp., illus. Describes and discusses the workings of a meter. WESTON ELECTRICAL INSTRUMENT CORP.

72. (e) Pamphlet: Instructions on how to use the Walz Corona exposure meter, also lists emulsion speed number of film (ASA). (f) Pamphlet: How to use the Walz exposure meter with booster, Coronet B, specifications, illus. U.S. PHOTO SUPPLY.

PICTURE TAKING ACCESSORIES

40. (a) Booklet: "New Super Quick-Set Universal Photographic Support," illustrates and describes new system for handling cameras and related accessories, 12pp. (b) Folder: "Whitehall Tripods." 6pp. illus. QUICK-SET, INC.

59. (a) Catalog: 12pp., illus.—describes all types of camera bags and leather goods of use to the photographer, lists prices. J. B. FERRIN CO.

67. (a) Catalogue: 10 pages describing the complete list of products. TEST-RITE INSTRUMENT CO.

71. (a) Brochure: "Slide & Movie Titles with Around the World Backgrounds." Lists all scenes available in various foreign countries which can be used as backgrounds for titles with your own wording. Sample title included. TITLE-CRAFT.

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3. (a) Booklet: Ilford Flat Films, 12pp, illus.; information and technical data. (b) Brochure: Ilford Roll Films, data and description; 6pp. (c) Circular: Ilford Microphen Developer, how to use it, and what it does. ILFORD CO.

43. (d) Booklet: Features and instructions on uses of Diaversal Enlarging Paper. REVERE CAMERA CO.

62. (j) Booklet: Special Adjustable Roll Film; FR CORPORATION.

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2. (a) Booklet: Describes in detail features of Admiral Slide-Light Viewer; 8pp. ADMIRALPHOTOPRODUCTS.

66. (a) Brochure: 4pp, illus., data, details, 35mm Opta-Vue hand viewer. OPTICS MANUFACTURING COMPANY.

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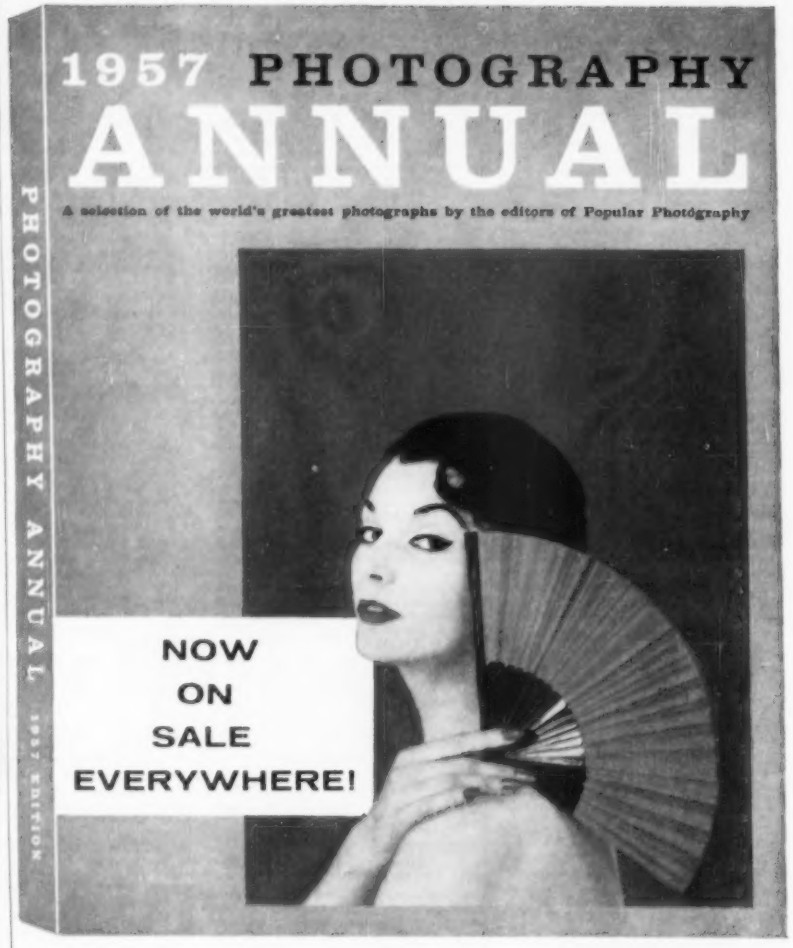

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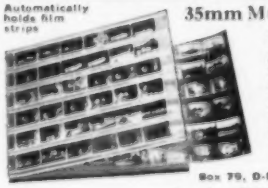

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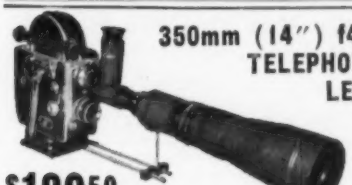

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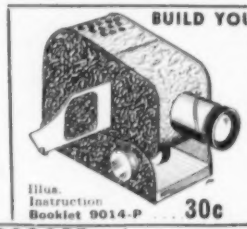

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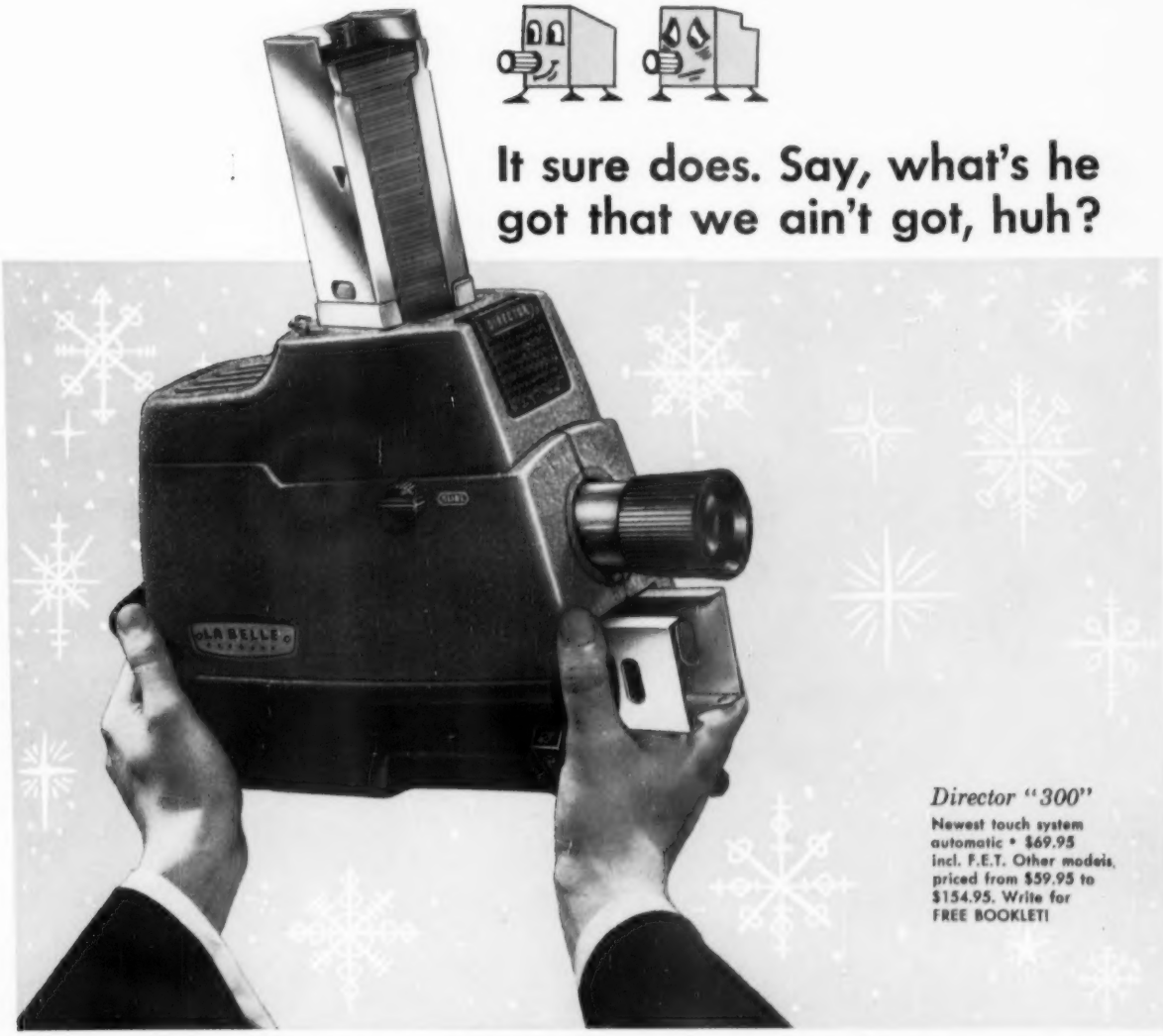

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